

**MEMORANDUM OF AGREEMENT  
SUBMITTED TO THE ADVISORY COUNCIL ON HISTORIC PRESERVATION  
REGARDING  
UPPER OHIO NAVIGATION STUDY, PENNSYLVANIA**

**WHEREAS**, the U.S. Army Corps of Engineers, Pittsburgh District (Corps), through the Upper Ohio Navigation Study, Pennsylvania, is recommending a modernization plan for replacement of lock chambers at Emsworth, Dashields, and Montgomery Locks and Dams in Allegheny and Beaver counties, Pennsylvania; and

**WHEREAS** a *Programmatic Agreement Regarding the Modernization of the Ohio River Navigation System* was executed June 20, 2009, among the Advisory Council on Historic Preservation, the U.S. Army Corps of Engineers, Huntington, Louisville and Pittsburgh District Offices, and the State Historic Preservation Officers of Illinois, Indiana, Kentucky, Ohio, Pennsylvania, and West Virginia; and

**WHEREAS**, under Programmatic Agreement Sections III.A.6. & B.1., the Corps has determined that the lock chamber replacements will have an adverse effect on Emsworth, Dashields, and Montgomery Locks and Dams, properties eligible for inclusion in the National Register of Historic Places; and

**WHEREAS** the Corps has documented the eligibility and effect determinations in the Upper Ohio Navigation Study, Pennsylvania, Feasibility Report and Integrated Environmental Impact Statement, and provided proper notification under 36 CFR § 800.8(c) and the SHPO concurred with the findings; and

**WHEREAS** archaeological properties will be addressed separately under Programmatic Agreement Section II, Identification and Treatment of Archaeological Properties; and

**WHEREAS** the Corps has consulted with the Rivers of Steel Heritage Corporation (RSHC), administrators of the Rivers of Steel National Heritage Area (RSNHA), and the Corps and SHPO has invited the RSHC to be a Consulting party in accordance with 33 CFR §§ 800.2(c)(5) and 800.3(f); and

**WHEREAS** the Corps prepared a Memorandum of Agreement (MOA) detailing mitigation plans, made the MOA available for Pennsylvania State Historic Preservation Officer (SHPO) and public review with the Environmental Impact Statement, and has taken all comments into account in accordance with Programmatic Agreement Section III.B.2.b.;

**NOW, THEREFORE**, the Corps and the SHPO agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

## Stipulations

The Corps will ensure that the following measures are carried out:

### 1. Documentation.

Prior to the start of construction and subject to the availability of funds, the Corps will document Emsworth, Dashields, and Montgomery Locks and Dams in accordance with *The Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation* for inclusion in the Historic American Engineering Record (HAER). The Corps will consult with the National Park Service to establish the appropriate level of documentation.

The documentation will include contextual information on the Ohio River Navigation System, of which Emsworth, Dashields and Montgomery Locks and Dams are among the oldest operating facilities. Documentation will supplement existing HAER documentation on Emsworth Main Channel and Back Channel Dams, (HAER PA-637, 637-A, & 637-B), and reference other Ohio River navigation projects – Davis Island Lock and Dam (PA-65), Lock and Dam 4 (PA-227-A), Lock and Dam 12 (WV-89), and Gallipolis Locks and Dam (WV-58, 58-A, 58-B, & 58-C). The Corps will submit the documentation to the NPS for processing to the Library of Congress, and will provide copies of documentation to the SHPO and other appropriate archives as determined through consultation with the SHPO.

Photographic documentation will be completed prior to commencement of any construction activities.

### 2. Interpretation.

Subject to the availability of funds, the Corps will prepare and implement an interpretive plan comprised of the following components through consultation with the SHPO and the Rivers of Steel Heritage Corporation:

a. The Corps will prepare and publish a scholarly historical work relating to Emsworth, Dashields, and Montgomery Locks and Dams as part of the Ohio River Navigation System. Its theme will focus on the 1929 navigation system and related historical issues, as represented in the waterways engineering pattern established by the Corps Pittsburgh District with Davis Island Lock and Dam and the second generation Emsworth, Dashields, and Montgomery facilities. The specific themes will be formulated through consultation with the Chief of Engineers Office of History and the SHPO. The Corps will investigate and use, to the maximum extent allowed by federal law and Corps policy, professional historical journals and the Pennsylvania Historical and Museum Commission publication program to maximize circulation of the work in professional circles.

b. The Corps will prepare and publish a popular article about Emsworth, Dashields, and Montgomery Locks and Dams as the three facilities in Pennsylvania at the head of the Ohio River Navigation System. The Corps will coordinate with the SHPO regarding use of the

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*Memorandum of Agreement  
Upper Ohio Navigation Study, Pennsylvania  
Emsworth, Dashields, and Montgomery Locks and Dams*

Pennsylvania Historical and Museum Commission publication program or other suitable means for publication.

c. The Corps will supplement its internet web site with interpretive information on the Ohio River Navigation System. A copy of the materials developed for the website will be provided to the SHPO and RSHC for review and comment. The Corps will also provide for the long-term maintenance of the web site.

d. The Corps will place interpretive signage in the vicinity of each of the lock and dam sites explaining the history and significance of the resources. The signage locations (within view of the resource as practical, given real estate constraints, and public accessibility) as well as a copy of the content will be provided to the SHPO and RSHC for review and comment. Additional interpretive opportunities, such as within the RSNHA, will be developed in coordination with the RHSC.

### **Reporting Requirements**

Subject to the availability of funds, the Corps will provide the SHPO with an annual status report summarizing actions taken to comply with this agreement through completion of all stipulated measures. The initial report shall be submitted by April 30<sup>th</sup> of the year following signature of the MOA.

### **Review, Amendment, and Termination**

This MOA shall become effective when signed by both the Corps and the SHPO. RSHC has been invited by the Corps and the SHPO to be a consulting party in the 106 process under 800.2(c)(5) and 800.3(f) and as such, is invited to concur in the MOA under 800.6(c)(3). This Agreement will expire five years after the date of last signature. This MOA may be extended for an additional three years by written agreement of the Parties.

This MOA may be modified or amended only by written, mutual agreement of the Parties. The Corps shall file a copy of any amended agreement with the Advisory Council.

At any time, one Party may request that the other Party consult to review implementation of the terms of this Agreement. If either Party to this Agreement determines that the terms cannot be or are not being carried out, the Parties shall consult to consider amending the agreement.

Either party may terminate this MOA by providing written notice to the other party. The termination shall be effective upon the sixtieth calendar day following notice, unless a later date is set forth. In the event of termination, the Corps shall request the comments of the Advisory Council under 36 CFR § 800.7(a).

The provisions of this MOA which require performance after the expiration or termination of this MOA shall remain in force notwithstanding the expiration or termination of this MOA.

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*Memorandum of Agreement  
Upper Ohio Navigation Study, Pennsylvania  
Emsworth, Dashields, and Montgomery Locks and Dams*

If any provision of this MOA is determined to be invalid or unenforceable, the remaining provisions shall remain in force and unaffected to the fullest extent permitted by law and regulation.

Nothing in this MOA is intended to or will be construed to create any rights or remedies for any third party and no third party is intended to be a beneficiary of this MOA.

Execution of this Memorandum of Agreement by the Corps and the Pennsylvania SHPO, its subsequent acceptance by the Advisory Council, and implementation of its terms, evidence that the Corps has afforded the Advisory Council an opportunity to comment on the Upper Ohio Navigation Study, Pennsylvania, and its effects on the historic lock and dam properties, and that the Corps has taken into account the effects of the undertaking on historic properties.

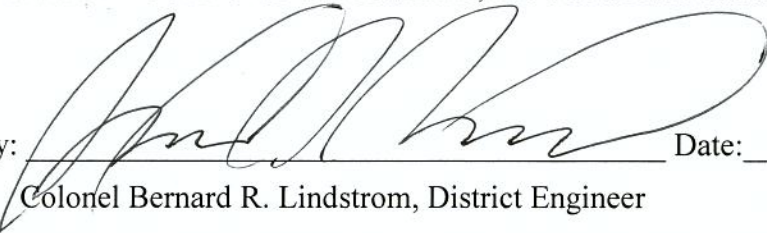
During the term of this Agreement, should the Federal Energy Regulatory Commission (FERC) issue a permit or license for a non-federal hydropower project at Emsworth, Dashields, or Montgomery Dams, the Corps shall inform FERC, as the federal lead agency for Section 106, National Historic Preservation Act, compliance, of the existence of this Agreement. Should the FERC project affect the Corps undertaking, or its ability to satisfactorily complete the conditions of this agreement, the Corps will first take steps to resolve this issue with the FERC, and failing timely resolution, shall consult to seek amendment of the agreement.

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*Memorandum of Agreement  
Upper Ohio Navigation Study, Pennsylvania  
Emsworth, Dashields, and Montgomery Locks and Dams*



U.S. ARMY CORPS OF ENGINEERS, PITTSBURGH DISTRICT

By:  Date: 3 NOV 14  
Colonel Bernard R. Lindstrom, District Engineer

STATE HISTORIC PRESERVATION OFFICER

By:  Date: Nov 25, 2014  
Serena Georgia Bellew, Deputy State Historic Preservation Officer  
Pennsylvania Historical and Museum Commission  
Bureau of Historic Preservation

ACCEPTED for the Advisory Council on Historic Preservation

By: \_\_\_\_\_ Date: \_\_\_\_\_

CONCURRING IN MOA:

RIVERS OF STEEL HERITAGE CORPORATION

By:  Date: 12 Dec 2014  
August R. Carlino, President and Chief Executive Officer

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Memorandum of Agreement  
Upper Ohio Navigation Study, Pennsylvania  
Emsworth, Dashields, and Montgomery Locks and Dams



*Preserving America's Heritage*

January 27, 2015

Ms. Deborah Campbell  
Chief, Environmental and Cultural Resources Section  
Department of the Army  
Pittsburgh District, Corps of Engineers  
William S. Moorhead Federal Building  
1000 Liberty Avenue  
Pittsburgh, PA 15222-4186

***Ref: Proposed Modernization of the Locks and Dams on the Upper Ohio River  
Upper Ohio Navigation Study  
Allegheny and Beaver Counties, Pennsylvania***

Dear Ms. Campbell:

On January 9, 2015, the Advisory Council on Historic Preservation (ACHP) received the Memorandum of Agreement (MOA) for the above referenced project. In accordance with Section 800.6(b)(1)(iv) of the ACHP's regulations, the ACHP acknowledges receipt of the MOA. The filing of the MOA, and execution of its terms, completes the requirements of Section 106 of the National Historic Preservation Act and the ACHP's regulations.

We appreciate you providing us with a copy of this MOA and will retain it for inclusion in our records regarding this project. Should you have any questions or require additional assistance, please contact Brian Lusher at 202-517-0221, or via email at [blusher@achp.gov](mailto:blusher@achp.gov).

Sincerely,

Raymond V. Wallace  
Historic Preservation Technician  
Office of Federal Agency Programs



Commonwealth of Pennsylvania  
Pennsylvania Historical and Museum Commission  
**Bureau for Historic Preservation**  
Commonwealth Keystone Building, 2<sup>nd</sup> Floor  
400 North Street  
Harrisburg, PA 17120-0093  
[www.phmc.state.pa.us](http://www.phmc.state.pa.us)

*Handwritten signature and date:*  
12 Dec 2014

13 November 2014

Deborah Campbell  
Chief, Environmental and Cultural Resources Section  
Army Corps of Engineers, Pittsburgh District  
1000 Liberty Avenue, Suite 2200  
Pittsburgh, PA 15222

Re: ER# 1997-1617-042-Z  
COE: Memorandum of Agreement, Upper Ohio Navigation Study,  
Allegheny and Beaver Counties

Dear Ms. Campbell:

Thank you for submitting information concerning the above referenced project. The Bureau for Historic Preservation (the State Historic Preservation Office) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

The Bureau for Historic Preservation has executed the enclosed Memorandum of Agreement for the project referenced above. Please have the Agreement executed by the remaining parties and forward the Agreement, along with supporting documentation, to the Advisory Council on Historic Preservation for acceptance.

If you need further information in this matter please consult Kira Heinrich at (717) 705-0700.

Sincerely,

Serena G. Bellew  
Director & Deputy State Historic Preservation Officer  
Bureau for Historic Preservation  
Pennsylvania Historical and Museum Commission

SGB/kmh



Pennsylvania Historical & Museum Commission  
Tom Corbett, Governor • Andrew E. Masich, Chairman • James M. Vaughan, Executive Director



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
**PITTSBURGH DISTRICT, CORPS OF ENGINEERS**  
**WILLIAM S. MOORHEAD FEDERAL BUILDING**  
**1000 LIBERTY AVENUE**  
**PITTSBURGH, PA 15222-4186**

June 6, 2012

Environmental and Cultural Resources Section

Mr. Douglas C. McLearen  
Chief, Division of Archaeology and Protection  
PA Bureau for Historic Preservation  
Commonwealth Keystone Building, 2<sup>nd</sup> Floor  
400 North Street  
Harrisburg, Pennsylvania 17120-0093

Dear Mr. McLearen:

Thank you for your review and comments dated March 24, 2011, on our draft Memorandum of Agreement (MOA) for Locks and Dams Modernization, Upper Ohio Navigation System, Allegheny and Beaver Counties (ER# 97-1617-042-K). I am enclosing a revised draft MOA that addresses some of your comments. Others will be addressed later, as explained below. We welcome any comments you may have on the enclosed revision.

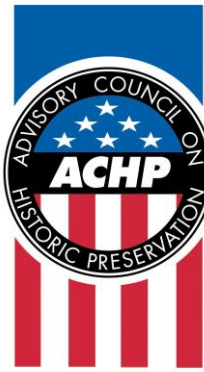
Section 106 compliance for this undertaking is being addressed through the National Environmental Policy Act compliance process. Our current plan is to circulate the draft MOA and historic properties documentation for public review in the Cultural Resource Appendix of our Upper Ohio Navigation Study, Pennsylvania, Draft Feasibility Report and Integrated Environmental Impact Statement. Through the public review currently scheduled for mid-October through November 2012, you will have another opportunity to comment on our undertaking and the draft MOA.

Following public input, we will further revise the draft MOA as needed, and forward it with the Feasibility Study Report through the Congressional authorization process. We will hold finalization and signature of the MOA until the finalized recommended plan is authorized. Please address any comments or questions to Conrad Weiser at 412-395-7220.

Sincerely,

Deborah L. Campbell  
Chief, Environmental and Cultural  
Resources Section

Enclosure



*Preserving America's Heritage*

March 18, 2011

Mr. Bruce Kish  
Environmental Protection Specialist  
Pittsburgh District, U.S. Army Corps of Engineers  
William S. Moorhead Federal Building  
1000 Liberty Avenue  
Pittsburgh, PA 1522-4186

***Ref: Proposed Modernization to the Locks and Dams on the Upper Ohio River  
(Upper Ohio Navigation Study)  
Allegheny and Beaver Counties, Pennsylvania***

Dear Mr. Kish:

The Advisory Council on Historic Preservation (ACHP) recently received the additional information in support of your notification of adverse effects of the referenced project on properties listed on and eligible for listing in the National Register of Historic Places. Based upon the information you provided, we have concluded that Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, of our regulations, "Protection of Historic Properties" (36 CFR Part 800), does not apply to this undertaking. Accordingly, we do not believe that our participation in the consultation to resolve adverse effects is needed. However, if we receive a request for participation from the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer, affected Indian tribe, a consulting party, or other party, we may reconsider this decision. Additionally, should circumstances change, and you determine that our participation is needed to conclude the consultation process, please notify us.

Pursuant to 36 CFR §800.6(b)(1)(iv), you will need to file the final Memorandum of Agreement (MOA), developed in consultation with the Pennsylvania SHPO, and any other consulting parties, and related documentation with the ACHP at the conclusion of the consultation process. The filing of the MOA and supporting documentation with the ACHP is required in order to complete the requirements of Section 106 of the National Historic Preservation Act.

Thank you for providing us with the opportunity to review this undertaking. If you have any questions, please contact Tom McCulloch at 202-606-8554, or via email at [tmcculloch@achp.gov](mailto:tmcculloch@achp.gov).

Sincerely,

Raymond V. Wallace  
Historic Preservation Technician  
Office of Federal Agency Programs



Commonwealth of Pennsylvania  
Pennsylvania Historical and Museum Commission  
**Bureau for Historic Preservation**  
Commonwealth Keystone Building, 2<sup>nd</sup> Floor  
400 North Street  
Harrisburg, PA 17120-0093  
[www.phmc.state.pa.us](http://www.phmc.state.pa.us)

24 March 2011

Curtis N. Meeder  
U.S. Army Corps of Engineers  
Pittsburgh District  
1000 Liberty Avenue  
Pittsburgh, PA 15222-4186

TO EXPEDITE REVIEW USE  
BHP REFERENCE NUMBER

RE: ER# 97-1617-042-K  
COE: Draft MOA for Locks and Dams Modernization, Upper Ohio River Navigation  
System, Allegheny and Beaver Counties

Dear Mr. Meeder:

The Bureau for Historic Preservation (the State Historic Preservation Office) has reviewed the above named project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended in 1980 and 1992, and the regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation as revised in 1999 and 2004. These regulations require consideration of the project's potential effect upon both historic and archaeological resources.

Thank you for providing the draft Memorandum of Agreement (MOA) for our review. We concur with the proposed mitigation; however there are some issues that should be clarified in or added to the MOA.

1. The Corps must either complete the identification of archaeological resources before the MOA is signed or include stipulations in the Agreement that develop a process by which archeological identifications are completed. We requested additional Geomorphology testing for the presence or absence of buried cultural remains but have yet to receive a response.
2. The Corps states they consulted with the Steel Industry Heritage Corporation. We agree that they are a logical consulting party. Did the Corps invite any other entities to consult, such as the company(ies) that leases land for their hydropower plants on the Ohio or the county historical societies? These are also potential consulting parties. If the Corps invited them, it should be mentioned in a whereas clause that they were invited and declined. If they accepted, we are unaware of any comments they provided.

3. You should reference in a whereas clause that there is a Programmatic Agreement for the entire Ohio River Navigation System that all states along the river signed. The whereas clause should give a broader context for the agreement with Pennsylvania.

Finally, we recommend that you include a footer on each page that identifies the project.

If you need further assistance in this matter, contact Ann Safley at (717) 787-9121.

Sincerely

A handwritten signature in cursive script, appearing to read "Ann Safley", followed by a small flourish or mark.

Douglas C. McLearen, Chief  
Division of Archaeology & Protection

DMcL/ras





Commonwealth of Pennsylvania  
**Pennsylvania Historical and Museum Commission**  
Bureau for Historic Preservation  
Post Office Box 1026  
Harrisburg, Pennsylvania 17108-1026

December 14, 2000

James A. Purdy  
U.S. Army Corps of Engineers  
Pittsburgh District  
1000 Liberty Avenue  
Pittsburgh, PA 15222-4186

TO EXPEDITE REVIEW USE  
BHP REFERENCE NUMBER

Re: ER 00-3443-003-B  
COE: Rehabilitation of Emsworth Locks and Dams, Emsworth,  
Allegheny Co.

Dear Mr. Purdy:

The Bureau for Historic Preservation (the State Historic Preservation Office) has reviewed the above named project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended in 1980 and 1992, and the regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation as revised in 1999. These requirements include consideration of the project's potential effect upon both historic and archaeological resources.

It is the opinion of the State Historic Preservation Officer that the **Emsworth Locks and Dams** is eligible for listing in the National Register of Historic Places under criteria A for its association with the New Deal program and transportation systems/improvements as well as under criteria C for engineering.

In our opinion this project will have an effect on the Emsworth Locks and Dams, eligible for the National Register of Historic Places. Furthermore, it is our opinion that the replacement of the chain system to hydraulic system will adversely affect the historic and engineering qualities that make the property eligible. To comply with the regulations of the Advisory Council on Historic Preservation, you must follow the procedures outlined in 36 CFR 800.5 (e), when the effect is adverse. You will need to notify the Advisory Council of the effect finding and continue to consult with the Bureau for Historic Preservation to seek ways to avoid or reduce the effects on historic properties.

If you need further information please consult Ann Safley at (717) 787-9121.

Sincerely,

Dan G. Deibler  
Acting Director

cc: Advisory Council on Historic Preservation  
DGD/ras





Commonwealth of Pennsylvania  
Pennsylvania Historical and Museum Commission  
**Bureau for Historic Preservation**  
Commonwealth Keystone Building, 2<sup>nd</sup> Floor  
400 North Street  
Harrisburg, PA 17120-0093  
[www.phmc.state.pa.us](http://www.phmc.state.pa.us)

25 April 2013

Bernard R. Lindstrom  
U.S. Army Corps of Engineers  
Pittsburgh District  
1000 Liberty Avenue  
Pittsburgh, PA 15222-4186

TO EXPEDITE REVIEW USE  
BHP REFERENCE NUMBER

RE: ER# 97-1617-042-M  
COE: Montgomery Locks and Dam Gate Replacement Project, Effect Report, Historic Resource Survey Form, Mitigation, and Draft MOA, Ohio River, Beaver Co.

Dear Mr. Lindstrom:

The Bureau for Historic Preservation (the State Historic Preservation Office) reviews projects in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended in 1980 and 1992, and the regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation as revised in 1999 and 2004, and under the authority of the Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988). These requirements include consideration of project potential effects upon both historic and archaeological resources.

**STRUCTURES:** We concur with the findings of the agency that the Montgomery Locks and Dam is eligible for listing in the National Register of Historic Places. We also concur with your assessment of adverse effect the gate replacement will have on the National Register eligible Montgomery Locks and Dam.

**ARCHAEOLOGY:** There is a high probability that archaeological resources are located in this project area. In our opinion, the activity described in your proposal should have no effect on such resources. Should the scope of the project be amended to include additional ground disturbing activity this office should be contacted immediately and a Phase I Archaeological Survey may be necessary to locate all potentially significant archaeological resources.

We agree with the recommended mitigation plan described in the effects report and memorialized in the draft Memorandum of Agreement. We offer the following comments on the Memorandum of Agreement:

The title of the Agreement should read: Memorandum of Agreement between the Pittsburgh District Corps of Engineers and the Pennsylvania State Historic Preservation Officer Regarding the Montgomery Locks and Dam Gates Replacement Project, Ohio River, Beaver County, Pennsylvania.

In the 5<sup>th</sup> whereas clause, you refer to a Memorandum in the past tense. What MOA is this referring to? The only MOA we have is a draft for the modernization project that covers the lock chamber replacement at the three locks and dams in Pennsylvania, Emsworth, Dashield, and Montgomery. We provided some comments on this but received no final agreement. The purpose of this whereas clause in this particular agreement is not clear.

In regards to the stipulations, you need to incorporate deadlines into each stipulation. The deadlines do not need to be date specific, but may say, within 2 years of the execution of this agreement, for instance.

Prior to resending this MOA to us, please e-mail the agreement in Word format to [rsafley@pa.gov](mailto:rsafley@pa.gov). Once we are satisfied with the agreement, the Corps must sign it before the SHPO will sign it. If you need further assistance in this matter, contact Ann Safley at (717) 787-9121.

Sincerely

A handwritten signature in black ink, appearing to read "Andrea L. MacDonald". The signature is fluid and cursive, with the first name "Andrea" being more prominent.

Andrea L. MacDonald, Chief  
Division of Preservation Services

ALMacD/ras

**United States Department of the Interior  
National Park Service**

**NATIONAL REGISTER OF HISTORIC PLACES  
REGISTRATION FORM**

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in How to Complete the National Register of Historic Places Registration Form (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

**1. Name of Property**

historic name Emsworth Lock and Dam

other names/site number \_\_\_\_\_

**2. Location**

street & number Ohio River Mile 6.2 not for publication \_\_\_\_\_

city or town Emsworth vicinity X

state Pennsylvania code PA county Allegheny code 003 zip code \_\_\_\_\_

**3. State/Federal Agency Certification**

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this \_\_\_\_\_ nomination \_\_\_\_\_ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property \_\_\_\_\_ meets \_\_\_\_\_ does not meet the National Register Criteria. I recommend that this property be considered significant \_\_\_\_\_ nationally \_\_\_\_\_ statewide \_\_\_\_\_ locally. ( \_\_\_\_\_ See continuation sheet for additional comments.)

\_\_\_\_\_  
Signature of certifying official                      Date

\_\_\_\_\_  
State or Federal agency and bureau

In my opinion, the property \_\_\_\_ meets \_\_\_\_ does not meet the National Register criteria. ( \_\_\_\_  
See continuation sheet for additional comments.)

\_\_\_\_\_  
Signature of commenting or other official      Date

\_\_\_\_\_  
State or Federal agency and bureau

#### 4. National Park Service Certification

I, hereby certify that this property is:

\_\_\_\_ entered in the National Register \_\_\_\_\_

\_\_\_\_ See continuation sheet.

\_\_\_\_ determined eligible for the \_\_\_\_\_  
National Register

\_\_\_\_ See continuation sheet.

\_\_\_\_ determined not eligible for the \_\_\_\_\_  
National Register

\_\_\_\_ removed from the National Register \_\_\_\_\_

\_\_\_\_ other (explain): \_\_\_\_\_

\_\_\_\_\_  
Signature of Keeper      Date  
of Action

#### 5. Classification

Ownership of Property (Check as many boxes as apply)

\_\_\_\_ private

\_\_\_\_ public-local

\_\_\_\_ public-State

☒ public-Federal

Category of Property (Check only one box)

\_\_\_\_ building(s)

\_\_\_\_ district

\_\_\_\_ site

☒ structure

\_\_\_\_ object

Number of Resources within Property

Contributing	Noncontributing
_____	_____ buildings
_____	_____ sites
__1__	_____ structures
_____	_____ objects
__1__	_____ Total

Number of contributing resources previously listed in the National Register \_\_0\_\_

Name of related multiple property listing (Enter "N/A" if property is not part of a multiple property listing.) \_\_Ohio River Navigation System\_\_\_\_\_

## 6. Function or Use

Historic Functions (Enter categories from instructions)

Cat: \_\_\_\_ Transportation \_\_\_\_\_ Sub: \_\_\_\_ Water-Related \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Current Functions (Enter categories from instructions)

Cat: \_\_\_\_ Transportation \_\_\_\_\_ Sub: \_\_\_\_ Water-Related \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## 7. Description

Architectural Classification (Enter categories from instructions)

\_\_\_\_ N/A \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Materials (Enter categories from instructions)

foundation \_\_\_\_ Reinforced Concrete \_\_\_\_\_  
roof \_\_\_\_\_  
walls \_\_\_\_ Reinforced Concrete \_\_\_\_\_  
\_\_\_\_\_  
other \_\_\_\_\_  
\_\_\_\_\_

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)

## 8. Statement of Significance

### Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing)

☒ **X** A Property is associated with events that have made a significant contribution to the broad patterns of our history.

☐ **B** Property is associated with the lives of persons significant in our past.

☒ **X** C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

☐ **D** Property has yielded, or is likely to yield information important in prehistory or history.

### Criteria Considerations (Mark "X" in all the boxes that apply.)

☐ **A** owned by a religious institution or used for religious purposes.

☐ **B** removed from its original location.

☐ **C** a birthplace or a grave.

☐ **D** a cemetery.

☐ **E** a reconstructed building, object, or structure.

☐ **F** a commemorative property.

☐ **G** less than 50 years of age or achieved significance within the past 50 years.

### Areas of Significance (Enter categories from instructions)

☐ Transportation \_\_\_\_\_  
☐ Commerce \_\_\_\_\_  
☐ Engineering \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Period of Significance** ☐ 1919-1922 \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Significant Dates** c. 1919 \_\_\_\_\_

☐ 1922 \_\_\_\_\_

☐ 1935 \_\_\_\_\_

☐ 1938 \_\_\_\_\_

**Significant Person** (Complete if Criterion B is marked above)

**Cultural Affiliation** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Architect/Builder** \_\_\_\_\_

\_\_\_\_\_ U.S. Army Corps of Engineers \_\_\_\_\_

Narrative Statement of Significance (Explain the significance of the property on one or more continuation sheets.)



## 9. Major Bibliographical References

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS)

☒ preliminary determination of individual listing (36 CFR 67) has been requested.

☐ previously listed in the National Register

☐ previously determined eligible by the National Register

☐ designated a National Historic Landmark

☐ recorded by Historic American Buildings Survey # \_\_\_\_\_

☐ recorded by Historic American Engineering Record # \_\_\_\_\_

Primary Location of Additional Data

☐ State Historic Preservation Office

☐ Other State agency

☒ Federal agency

☐ Local government

☐ University

☐ Other

Name of repository: \_\_\_\_\_

## 10 Geographical Data

Acreage of Property \_\_\_\_\_

UTM References (Place additional UTM references on a continuation sheet)

	Zone	Easting	Northing	Zone	Easting	Northing
1	17	577152	4483845	3	_____	_____
2	_____	_____	_____	4	_____	_____

\_\_\_\_\_ See continuation sheet.

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet.)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet.)

## 11. Form Prepared By

name/title\_\_David C. Berg, Architectural Historian\_\_

organization\_\_Greenehorne & O'Mara\_\_ date\_\_08/2001\_\_

street & number\_\_9001 Edmonston Road\_\_ telephone\_\_(301) 982-2800\_\_

city or town\_\_Greenbelt\_\_ state\_\_MD\_\_ zip code\_\_20770\_\_

## Additional Information

Submit the following items with the completed form:

Continuation Sheets

Maps

A USGS map (7.5 or 15 minute series) indicating the property's location.

A sketch map for historic districts and properties having large acreage or numerous resources.

Photographs

Representative black and white photographs of the property.

Additional items (Check with the SHPO or FPO for any additional items)

## Property Owner

(Complete this item at the request of the SHPO or FPO.)

name\_\_U.S. Army Corps of Engineers\_\_

street & number\_\_1000 Liberty Avenue,\_\_ telephone\_\_

city or town\_\_Pittsburgh\_\_ state\_\_PA\_\_ zip code\_\_

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 hours per response including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Services Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Project (1024-0018), Washington, DC 20503.

NATIONAL REGISTER OF HISTORIC PLACES  
CONTINUATION SHEET

Section   7   Page   1   Emsworth Lock and Dam  
name of property  
Emsworth, PA  
county and State

Emsworth Locks and Dams extends across the Ohio River at Mile Marker 6.81 and is situated between the towns of Emsworth and Ben Avon, Pennsylvania, about 6 miles north of Pittsburgh. The facility is accessible from a small service road and is in close proximity to Pennsylvania State Route 65.

The facility consists of two concrete gated dams, two locks, and a series of operations buildings. The locks and operation buildings are located on the north bank of the Ohio River. The lock on the land side of the facility measures 110' x 600' and is primarily used for barges and other large river craft. A second smaller lock measuring 56' x 360' is located on the river side of the facility and is primarily used for locking through pleasure craft and other small vessels. Both locks are reinforced concrete structures with steel mitered gates on each end of the lock. The land side lock has a concrete guide wall that extends for a number of feet up and downriver from the lock. One original lock building from the 1930s has survived. It is a two-story concrete structure with simple lines and a flat roof. Two other operations buildings on the property are built of textured concrete block and date from a rehabilitation of the facility that took place around 1988.

Emsworth dam is actually two dams. The main dam on the north side of the river stretches from the north bank of the river to Neville Island and measures about 75' x 967'. A series of large concrete piers supports a series of steel trusses at the top. Each of the 8 bays of the dam has a large steel gate that can be raised or lowered by machinery. There is also a small spillway on the north end of the dam. The piers of the dam stand approximately 45' above river level and are curved on the downriver side. At the top of each pier there is now a small metal-clad shed that contains operational equipment for the gates. A crane is mounted on top of the steel trusses at the top of the dam and can be moved on rails to any part of the dam. The dam ends at a large concrete embankment on the north shore of Neville Island.

The six-bay backwater dam measures 75' x 750' and stands approximately 45' above the Emsworth navigation pool of the Ohio River. The design of the backwater dam is otherwise identical to the main dam, which is 3500' upriver.

The concrete structure of the dam has not changed significantly since the construction of the gated dam from 1935-1938, but the dam gates and machinery were refitted or replaced in a 1988 rehabilitation. The installation of metal sheds on top of the concrete piers of the main dam and backwater dam is the most visible alteration that has taken place at the facility. The main operations building dating from the 1930s was also demolished as part of the 1988 rehabilitation, and a new operations building was constructed on the north bank of the river, adjacent to the 110' X 600' lock. The structure has a remarkably high level of integrity overall, considering its age and the heavy demands that are placed on the facility by locking activities and river conditions.

NATIONAL REGISTER OF HISTORIC PLACES  
CONTINUATION SHEET

Section   8   Page   1   Emsworth Lock and Dam  
name of property  
Emsworth, PA  
county and State

**Summary Paragraph**

River navigation was an important factor in the economic development of the Ohio River Valley, and appropriations for improving river navigation began as early as 1824. The river's role as a transportation route in opening up the west and shipping goods downriver cannot be overstated. With the opening of the Louisville and Portland Canal in the 1830s, the entire stretch of the river could be navigated when the water was high, but by the 1850s, railroad competition was threatening the economic dominance of river transportation. Eventually, plans developed for a series of locks and dams along the Ohio to ensure a stable navigation pool year-round. Built between 1877 and 1885, Davis Island Dam was the first lock and dam built on the portion of the river that is now in the charge of the Pittsburgh District Army Corps of Engineers. An engineering marvel of its time, this dam established a river harbor and navigation pool in Pittsburgh.

The Pittsburgh District constructed Ohio River Lock and Dam 2 at River Mile 9.0 between 1898 and 1906, with the locks and operation buildings located on Neville Island. During World War I, it was decided to replace this structure and the Davis Island Dam with a more modern facility. Construction on a fixed-crest concrete dam at Emsworth began in 1919 and was completed by 1922. The dam featured a durable concrete fixed crest and two locks, as opposed to the single lock and movable crest Chanoine wicket dam at Lock and Dam 2. The construction of Emsworth Locks and Dams led to the demolition of Davis Island Dam and Ohio River Lock and Dam 2.

In 1935 plans were made for a concrete-gated dam at Emsworth to replace the concrete fixed-crest dam. Construction began in 1935 and was completed by 1938. The general configuration of the dam and its two locks has not changed significantly since 1938. Most of the changes have involved modernizing the locking equipment and other facilities. Maintenance was carried out on the locking mechanism from 1938 through the 1980s, and in 1988 the complex underwent a major rehabilitation. The lock gates were replaced, and the locking equipment and dam gates were altered to allow for electronic control. This resulted in the construction of a single metal shed on top of each pier of the gated dams. In addition, the 1938 power house building was demolished, and a new lock office building was constructed on the north bank of the Ohio. Recently, the lock walls and pavement were also raised one foot in response to recent flooding.

Emsworth Dam is historically significant. The original 1919-1922 dam was the first fixed-crest dam built by the Pittsburgh District on the Ohio River to replace its initial set of movable-crest dams built in the late nineteenth and early twentieth centuries. As it stands today, the current 1935-1938 gated dam is also the oldest dam of its type on the Pittsburgh District's portion of the Ohio River. The dam maintains a 9' navigation pool that stretches beyond downtown Pittsburgh and is vital to many of Pittsburgh's industries. The Emsworth navigation pool has been used for over 80 years by thousands of towboats moving chemicals, steel, manufactured goods, coal, sand, and other commodities up and down the Ohio River. Over 17 million tons of freight pass through these locks yearly, and the facility regularly locks over 500 towboats per month.

NATIONAL REGISTER OF HISTORIC PLACES  
CONTINUATION SHEET

Section   8   Page   2   Emsworth Lock and Dam  
name of property  
Emsworth, PA  
county and State

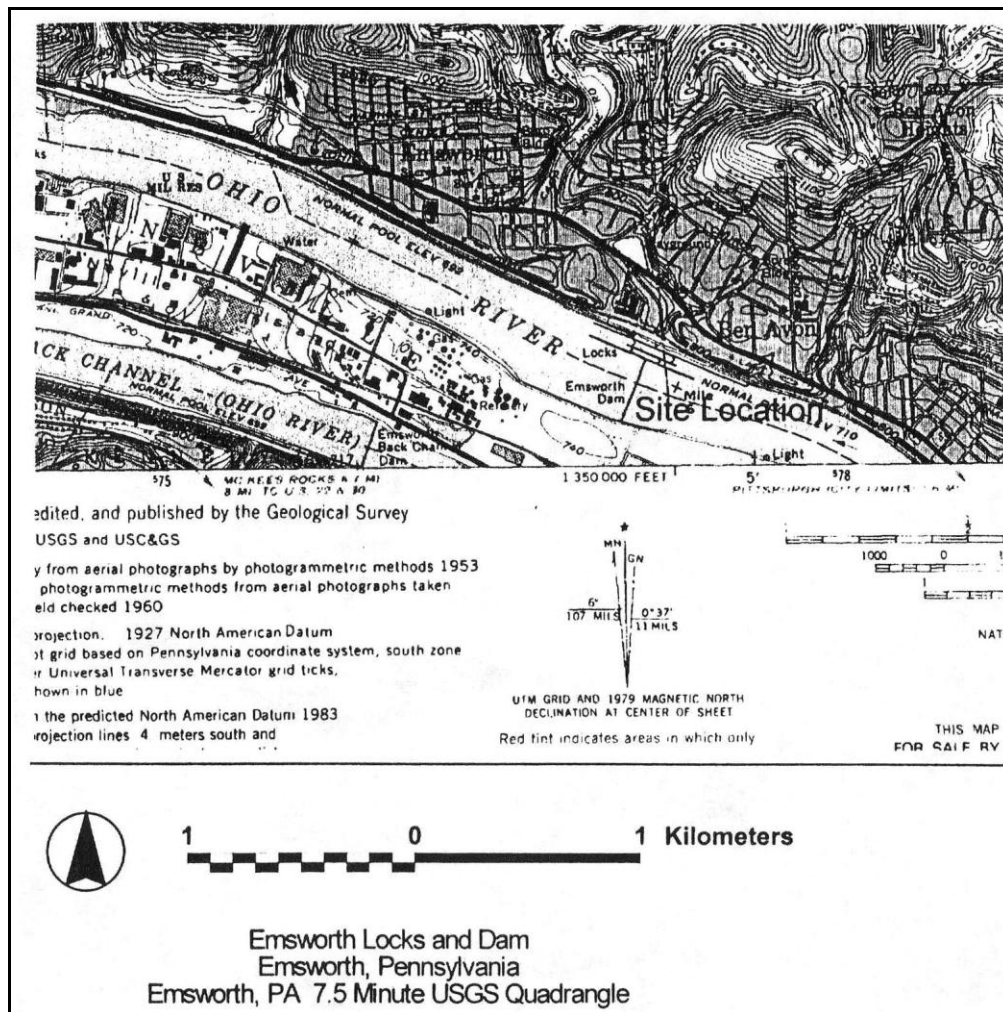
The Ohio River Navigation System has played an important role in the history of Pittsburgh and the surrounding area. Inexpensive river transportation has spurred industrial growth in western Pennsylvania and along the entire stretch of the Ohio River. The Ohio River was a vital route for the transportation of strategic materials during World War II and continues to be an important transportation artery. The Ohio River Navigation System is itself potentially eligible for the National Register, and Emsworth Locks and Dams, through its association with this historic transportation network, has considerable historic significance and is eligible for the National Register under Criterion A. The complex is also one of only two gated dams built in the 1930s that survives on the Ohio River, and is therefore also eligible for the National Register under Criterion C.

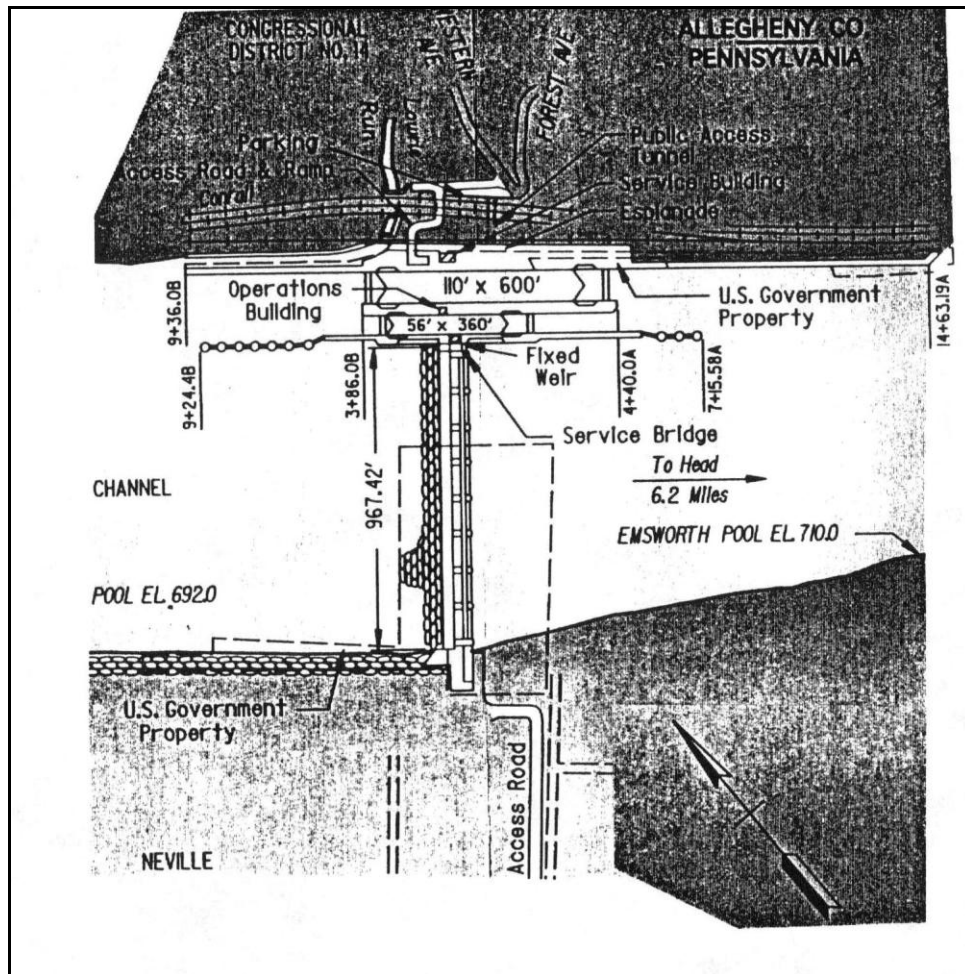
NATIONAL REGISTER OF HISTORIC PLACES  
CONTINUATION SHEET

Section   10   Page   1   Emsworth Lock and Dam  
name of property  
Emsworth, PA  
county and State

**Boundary Description and Justification**

Boundaries for this property consist of all USACE Federally owned property at the site, including the lock and dam, operations buildings, and other service buildings.







**United States Department of the Interior  
National Park Service**

**NATIONAL REGISTER OF HISTORIC PLACES  
REGISTRATION FORM**

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in How to Complete the National Register of Historic Places Registration Form (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

**1. Name of Property**

historic name Dashields Lock and Dam

other names/site number \_\_\_\_\_

**2. Location**

street & number Ohio River Mile 13.3 not for publication \_\_\_\_\_

city or town Glenwillard vicinity X

state Pennsylvania code PA county Allegheny code 003 zip code \_\_\_\_\_

**3. State/Federal Agency Certification**

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this \_\_\_\_\_ nomination \_\_\_\_\_ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property \_\_\_\_\_ meets \_\_\_\_\_ does not meet the National Register Criteria. I recommend that this property be considered significant \_\_\_\_\_ nationally \_\_\_\_\_ statewide \_\_\_\_\_ locally. ( \_\_\_\_\_ See continuation sheet for additional comments.)

\_\_\_\_\_  
Signature of certifying official

\_\_\_\_\_  
Date

\_\_\_\_\_  
State or Federal agency and bureau

In my opinion, the property \_\_\_\_ meets \_\_\_\_ does not meet the National Register criteria. ( \_\_\_\_  
See continuation sheet for additional comments.)

\_\_\_\_\_  
Signature of commenting or other official      Date

\_\_\_\_\_  
State or Federal agency and bureau

#### 4. National Park Service Certification

I, hereby certify that this property is:

\_\_\_\_ entered in the National Register \_\_\_\_\_

\_\_\_\_ See continuation sheet.

\_\_\_\_ determined eligible for the \_\_\_\_\_  
National Register

\_\_\_\_ See continuation sheet.

\_\_\_\_ determined not eligible for the \_\_\_\_\_  
National Register

\_\_\_\_ removed from the National Register \_\_\_\_\_

\_\_\_\_ other (explain): \_\_\_\_\_

\_\_\_\_\_  
Signature of Keeper      Date  
                                 of Action

#### 5. Classification

Ownership of Property (Check as many boxes as apply)

- \_\_\_\_ private
- \_\_\_\_ public-local
- \_\_\_\_ public-State
- ☒ public-Federal

Category of Property (Check only one box)

- \_\_\_\_ building(s)
- \_\_\_\_ district
- \_\_\_\_ site
- ☒ structure
- \_\_\_\_ object

Number of Resources within Property

Contributing	Noncontributing
_____	_____ buildings
_____	_____ sites
__1__	_____ structures
_____	_____ objects
__1__	_____ Total

Number of contributing resources previously listed in the National Register \_\_0\_\_

Name of related multiple property listing (Enter "N/A" if property is not part of a multiple property listing.) \_\_Ohio River Navigation System\_\_\_\_\_

## 6. Function or Use

Historic Functions (Enter categories from instructions)

Cat: \_\_\_\_ Transportation\_\_\_\_ Sub: \_\_\_\_ Water-Related\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Current Functions (Enter categories from instructions)

Cat: \_\_\_\_ Transportation\_\_\_\_ Sub: \_\_\_\_ Water-Related\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## 7. Description

Architectural Classification (Enter categories from instructions)

\_\_\_\_ Other – Concrete Fixed Crest Dam\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Materials (Enter categories from instructions)

foundation \_\_\_\_ Reinforced Concrete\_\_\_\_  
roof\_\_\_\_\_  
walls \_\_\_\_ Reinforced Concrete \_\_\_\_  
\_\_\_\_\_  
other \_\_\_\_\_  
\_\_\_\_\_

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)

## 8. Statement of Significance

### Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing)

☒ **X** A Property is associated with events that have made a significant contribution to the broad patterns of our history.

☐ **B** Property is associated with the lives of persons significant in our past.

☒ **X** C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

☐ **D** Property has yielded, or is likely to yield information important in prehistory or history.

### Criteria Considerations (Mark "X" in all the boxes that apply.)

☐ **A** owned by a religious institution or used for religious purposes.

☐ **B** removed from its original location.

☐ **C** a birthplace or a grave.

☐ **D** a cemetery.

☐ **E** a reconstructed building, object, or structure.

☐ **F** a commemorative property.

☐ **G** less than 50 years of age or achieved significance within the past 50 years.

### Areas of Significance (Enter categories from instructions)

☐ **Transportation** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Period of Significance** \_\_\_\_\_ 1927-1951 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Significant Dates** c. 1927 \_\_\_\_\_

\_\_\_\_\_ 1929 \_\_\_\_\_

\_\_\_\_\_

**Significant Person** (Complete if Criterion B is marked above)

**Cultural Affiliation** \_\_\_\_\_

\_\_\_\_\_

**Architect/Builder** \_\_\_\_\_  
\_\_\_\_\_ U.S. Army Corps of Engineers\_\_

Narrative Statement of Significance (Explain the significance of the property on one or more continuation sheets.)

## 9. Major Bibliographical References

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS)

☒ preliminary determination of individual listing (36 CFR 67) has been requested.

☐ previously listed in the National Register

☐ previously determined eligible by the National Register

☐ designated a National Historic Landmark

☐ recorded by Historic American Buildings Survey # \_\_\_\_\_

☐ recorded by Historic American Engineering Record # \_\_\_\_\_

Primary Location of Additional Data

☐ State Historic Preservation Office

☐ Other State agency

☒ Federal agency

☐ Local government

☐ University

☐ Other

Name of repository: \_\_\_\_\_

## 10 Geographical Data

Acreage of Property \_\_\_\_\_

UTM References (Place additional UTM references on a continuation sheet)

	Zone	Easting	Northing	Zone	Easting	Northing
1	18	567231	4488769	3	_____	_____
2	_____	_____	_____	4	_____	_____

\_\_\_\_\_ See continuation sheet.

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet.)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet.)

### 11. Form Prepared By

name/title\_\_David C. Berg, Architectural Historian\_\_

organization\_\_Greenehorne & O'Mara\_\_ date\_\_08/2001\_\_

street & number\_\_9001 Edmonston Road\_\_ telephone\_\_(301) 982-2800\_\_

city or town\_\_\_\_Greenbelt\_\_\_\_\_ state\_\_MD\_\_ zip code \_\_20770\_\_

### Additional Information

Submit the following items with the completed form:

Continuation Sheets

Maps

A USGS map (7.5 or 15 minute series) indicating the property's location.

A sketch map for historic districts and properties having large acreage or numerous resources.

Photographs

Representative black and white photographs of the property.

Additional items (Check with the SHPO or FPO for any additional items)

### Property Owner

(Complete this item at the request of the SHPO or FPO.)

name \_\_\_\_U.S. Army Corps of Engineers\_\_\_\_\_

street & number\_\_\_\_1000 Liberty Avenue,\_\_\_\_\_ telephone\_\_\_\_\_

city or town\_\_\_\_Pittsburgh\_\_\_\_\_ state\_\_PA\_\_ zip code \_\_\_\_\_

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 et seq.).

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NATIONAL REGISTER OF HISTORIC PLACES  
CONTINUATION SHEET

Section   7   Page   1   Dashields Lock and Dam  
name of property  
Glenwillard, PA  
county and State

Dashields Locks and Dam extends across the Ohio River at Mile Marker 13.3, and is situated just upriver from Glenwillard, Pennsylvania, about 13 miles north of downtown Pittsburgh. The facility is reached from Route 930 and Spring Run Road.

The facility consists of a fixed-crest concrete dam, two locks, and a series of operations buildings. The locks and operation buildings are located on the south bank of the Ohio River. The lock on the land side of the facility measures 110' x 600'. This lock is primarily used for barges and other large river craft. A second smaller lock measuring 56' x 360' is located on the river side of the facility. This lock is primarily used for locking through pleasure craft and other small river vessels. The locks are both reinforced concrete structures with steel gates on each end of the lock. The land side lock has a concrete guide wall that extends for a number of feet up and down river from the lock. A small one-story lock building from the 1920s has survived on the outer wall of the river side lock. The main operations building, the equipment building, and the workshop are built of textured concrete block and date from a 1987-1990 rehabilitation of the site.

Dashields Dam measures about 50' x 1585'. It is a low, fixed-crest concrete structure that maintains a nine-foot navigation pool and allows any excess water to flow freely over the crest. The dam ends on the north side of the river with a small concrete abutment.

The locks are reinforced concrete walled chambers. Each lock has a two-part mitered steel gate at each end of the lock chamber to allow access for vessels being locked through. Hydraulic machinery controlled by an electronic operation system controlled the locking mechanism and gates.

The overall concrete structure of the dam has not changed significantly since its construction. The dam has remained largely the same, and the locks have retained their original size and configuration. A 1987-1990 rehabilitation of the dam led to the replacement of the lock gates and the conversion of the lock operation machinery to an electronic system. The 1987-1990 rehabilitation also resulted in the demolition of the original operations building and the construction of a new operations building and other service structures on the south bank of the Ohio. Overall, the structure has a remarkably high level of integrity considering its age and the heavy demands that are placed on the facility by locking activities and river conditions.

NATIONAL REGISTER OF HISTORIC PLACES  
CONTINUATION SHEET

Section   8   Page   1   Dashields Lock and Dam  
name of property  
Glenwillard, PA  
county and State

River navigation was an important factor in the economic development of the Ohio River Valley, and appropriations to improve river navigation began as early as 1824. The river's role as a transportation route in opening up the west and shipping goods downriver cannot be overstated. With the opening of the Louisville and Portland Canal in the 1830s, the entire stretch of the river could be navigated in high water, but by the 1850s, railroad competition was threatening the economic dominance of river transportation. Eventually, it was decided to build a series of locks and dams along the Ohio to ensure a stable navigation pool all year long. Built between 1877 and 1885, Davis Island Dam was the first lock and dam built on the portion of the river that is now in the charge of the Pittsburgh District Army Corps of Engineers. This dam, an engineering marvel of its time, established a river harbor and navigation pool in Pittsburgh.

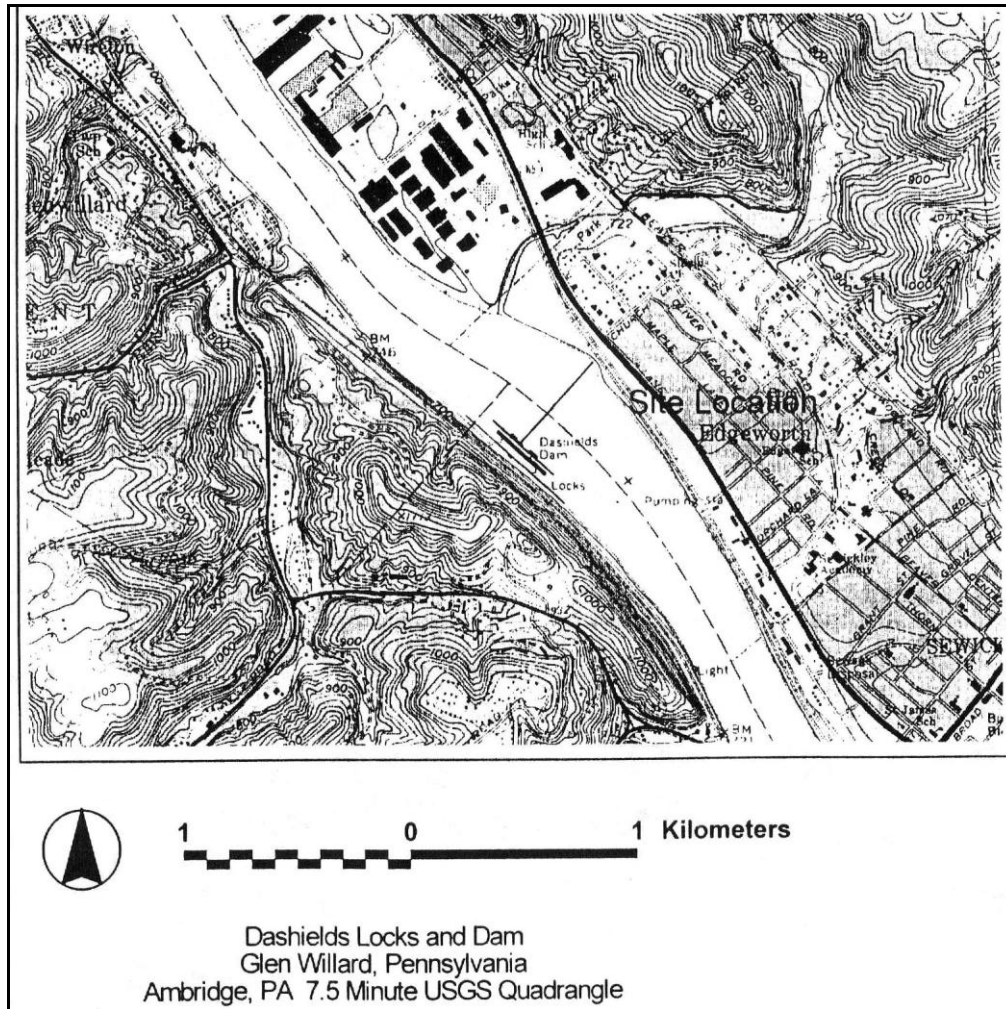
The Pittsburgh District constructed Ohio River Lock and Dam 2 at River Mile 9.0 between 1898 and 1906 and built Lock and Dam 3 between 1899 and 1907. The locks and operations buildings for Lock and Dam 3 were located on the south side of the river at Osborne, Pennsylvania, at River Mile 10.9. Lock and Dam 3 was a movable-crest wicket dam. The River and Harbors Act of 1918 authorized the construction of Dashields Dam to replace Ohio River Lock and Dam 3. Construction on Dashields Lock and Dam began in 1927 and was completed in 1929. Lock and Dam 3 was equipped with only one 110' by 600' lock, so the two-lock system at Dashields was a significant improvement. Dashields Locks and Dam's odd name was selected to honor David A. Shields, a member of the locally prominent Shields family and a postmaster at nearby Sewickley Bottom in the 19th century. The original intended name for the dam was D.A. Shields, but the name has been represented, for the most part, as "Dashields.

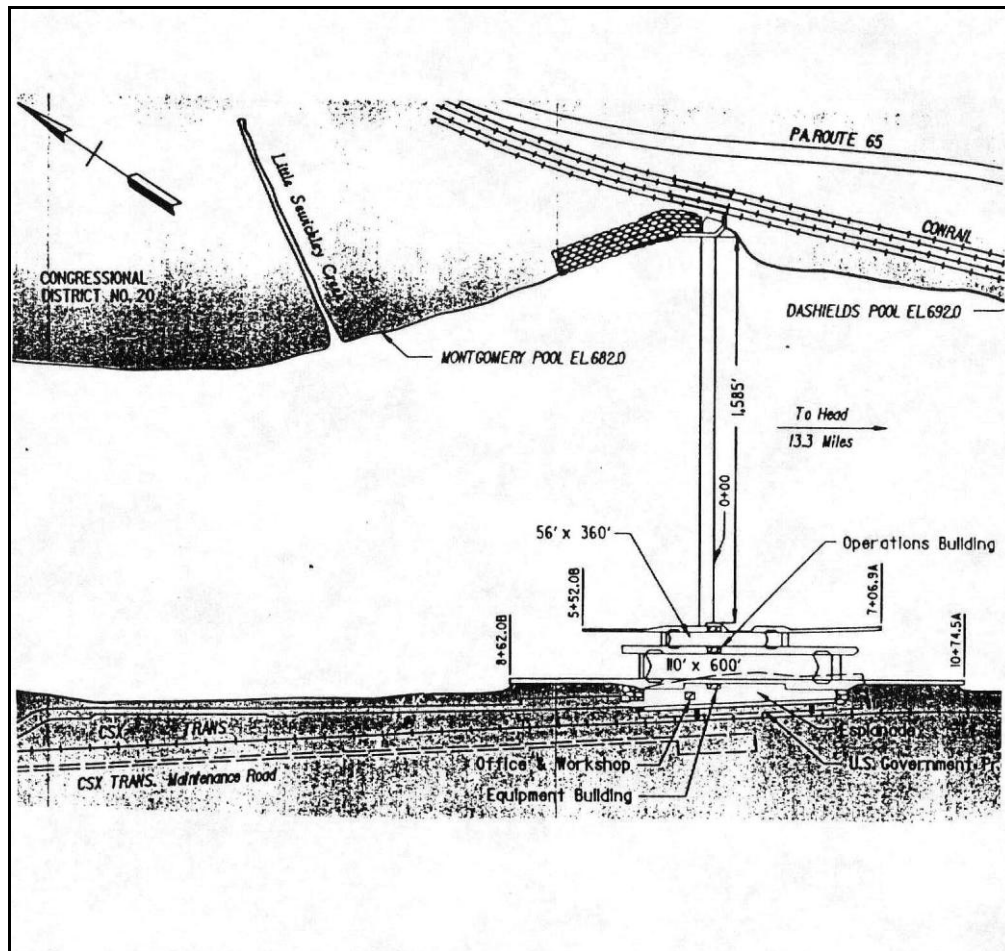
Dashields Dam is historically significant. As it stands today, the 1927-1929 fixed-crest dam is the only concrete fixed crest dam on the Pittsburgh District's portion of the Ohio River. The dam maintains a nine-foot navigation pool that extends 7.1 miles upriver to Emsworth Dam. This navigation pool is vital to many Pittsburgh area industries. The Dashields navigation pool has been used for over 70 years by thousands of towboats moving chemicals, steel, manufactured goods, coal, sand, and other commodities up and down the Ohio River. About 19 million tons of freight pass through these locks yearly, and the facility regularly locks over 500 towboats per month.

The Ohio River Navigation System has played an important role in the history of Pittsburgh and the surrounding area. Inexpensive river transportation has spurred industrial growth in western Pennsylvania and along the entire stretch of the Ohio River. The Ohio River was a vital route for the transportation of strategic materials during World War II and continues to be an important transportation artery. Dashields Locks and Dam, through its association with this historic transportation network, has considerable historic significance and is eligible for the National Register under Criterion A. The complex is also among the oldest lock and dam facilities that survive on the Ohio River.

Section   10   Page   1   Dashields Lock and Dam \_\_\_\_\_  
name of property  
Glenwillard, PA \_\_\_\_\_  
county and State

Boundaries for this property consist of all USACE Federally owned property at the site, including the lock and dam, operations buildings, and other service buildings.





**United States Department of the Interior  
National Park Service**

**NATIONAL REGISTER OF HISTORIC PLACES  
REGISTRATION FORM**

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in How to Complete the National Register of Historic Places Registration Form (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

**1. Name of Property**

historic name Montgomery Locks and Dam

other names/site number \_\_\_\_\_

**2. Location**

street & number Ohio River Mile 31.7 not for publication \_\_\_\_\_

city or town Shippingport vicinity X

state Pennsylvania code PA county Beaver code 007 zip code \_\_\_\_\_

**3. State/Federal Agency Certification**

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this \_\_\_\_\_ nomination \_\_\_\_\_ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property \_\_\_\_\_ meets \_\_\_\_\_ does not meet the National Register Criteria. I recommend that this property be considered significant \_\_\_\_\_ nationally \_\_\_\_\_ statewide \_\_\_\_\_ locally. ( \_\_\_\_\_ See continuation sheet for additional comments.)

\_\_\_\_\_  
Signature of certifying official

\_\_\_\_\_  
Date

\_\_\_\_\_  
State or Federal agency and bureau

In my opinion, the property \_\_\_\_ meets \_\_\_\_ does not meet the National Register criteria. ( \_\_\_\_  
See continuation sheet for additional comments.)

\_\_\_\_\_  
Signature of commenting or other official      Date

\_\_\_\_\_  
State or Federal agency and bureau

#### 4. National Park Service Certification

I, hereby certify that this property is:

\_\_\_\_ entered in the National Register \_\_\_\_\_

\_\_\_\_ See continuation sheet.

\_\_\_\_ determined eligible for the \_\_\_\_\_  
National Register

\_\_\_\_ See continuation sheet.

\_\_\_\_ determined not eligible for the \_\_\_\_\_  
National Register

\_\_\_\_ removed from the National Register \_\_\_\_\_

\_\_\_\_ other (explain): \_\_\_\_\_

\_\_\_\_\_  
Signature of Keeper      Date  
of Action

#### 5. Classification

Ownership of Property (Check as many boxes as apply)

- \_\_\_\_ private
- \_\_\_\_ public-local
- \_\_\_\_ public-State
- ☒ public-Federal

Category of Property (Check only one box)

- \_\_\_\_ building(s)
- \_\_\_\_ district
- \_\_\_\_ site
- ☒ structure
- \_\_\_\_ object

Number of Resources within Property

Contributing	Noncontributing
<u>  2  </u>	<u>      </u> buildings
<u>      </u>	<u>      </u> sites
<u>  2  </u>	<u>      </u> structures
<u>      </u>	<u>      </u> objects
<u>  4  </u>	<u>      </u> Total

Number of contributing resources previously listed in the National Register   0  

Name of related multiple property listing (Enter "N/A" if property is not part of a multiple property listing.)   Ohio River Navigation System



## 6. Function or Use

Historic Functions (Enter categories from instructions)

Cat: _____ Transportation _____	Sub: _____ Water-Related _____
_____ Government _____	_____ Public Works _____
_____	_____
_____	_____
_____	_____
_____	_____

Current Functions (Enter categories from instructions)

Cat: _____ Transportation _____	Sub: _____ Water-Related _____
_____ Government _____	_____ Public Works _____
_____	_____
_____	_____
_____	_____
_____	_____

## 7. Description

Architectural Classification (Enter categories from instructions)

\_\_\_\_\_ Other – Concrete Gated Dam \_\_\_\_\_  
\_\_\_\_\_ Power Facility \_\_\_\_\_  
\_\_\_\_\_ Operations building \_\_\_\_\_

Materials (Enter categories from instructions)

foundation \_\_\_\_\_ Reinforced Concrete \_\_\_\_\_  
roof \_\_\_\_\_  
walls \_\_\_\_\_ Reinforced Concrete \_\_\_\_\_  
\_\_\_\_\_ other \_\_\_\_\_  
\_\_\_\_\_

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)

## 8. Statement of Significance

### Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing)

☒ **X** A Property is associated with events that have made a significant contribution to the broad patterns of our history.

☐ **B** Property is associated with the lives of persons significant in our past.

☒ **X** C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

☐ **D** Property has yielded, or is likely to yield information important in prehistory or history.

### Criteria Considerations (Mark "X" in all the boxes that apply.)

☐ **A** owned by a religious institution or used for religious purposes.

☐ **B** removed from its original location.

☐ **C** a birthplace or a grave.

☐ **D** a cemetery.

☐ **E** a reconstructed building, object, or structure.

☐ **F** a commemorative property.

☐ **G** less than 50 years of age or achieved significance within the past 50 years.

### Areas of Significance (Enter categories from instructions)

☐ **Transportation** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Period of Significance** \_\_\_\_\_ 1932-1951 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Significant Dates** c. 1932 \_\_\_\_\_

\_\_\_\_\_ 1936 \_\_\_\_\_

\_\_\_\_\_ 1989 \_\_\_\_\_

**Significant Person** (Complete if Criterion B is marked above)

**Cultural Affiliation** \_\_\_\_\_

\_\_\_\_\_

**Architect/Builder** \_\_\_\_\_ U.S. Army Corps of Engineers \_\_\_\_\_  
\_\_\_\_\_ Boothe and Flinn Company, Contractors \_\_\_\_

Narrative Statement of Significance (Explain the significance of the property on one or more continuation sheets.)

## 9. Major Bibliographical References

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS)

☒ preliminary determination of individual listing (36 CFR 67) has been requested.

☐ previously listed in the National Register

☐ previously determined eligible by the National Register

☐ designated a National Historic Landmark

☐ recorded by Historic American Buildings Survey # \_\_\_\_\_

☐ recorded by Historic American Engineering Record # \_\_\_\_\_

Primary Location of Additional Data

☐ State Historic Preservation Office

☐ Other State agency

☒ Federal agency

☐ Local government

☐ University

☐ Other

Name of repository: \_\_\_\_\_

## 10 Geographical Data

Acreage of Property \_\_\_\_\_

UTM References (Place additional UTM references on a continuation sheet)

	Zone	Easting	Northing	Zone	Easting	Northing
1	17	551903	4499914	3	_____	_____
2	_____	_____	_____	4	_____	_____

\_\_\_\_\_ See continuation sheet.

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet.)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet.)

### 11. Form Prepared By

name/title\_\_David C. Berg, Architectural Historian\_\_

organization\_\_Greenehorne & O'Mara\_\_ date\_\_08/2001\_\_

street & number\_\_9001 Edmonston Road\_\_ telephone\_\_(301) 982-2800\_\_

city or town\_\_Greenbelt\_\_ state\_\_MD\_\_ zip code\_\_20770\_\_

### Additional Information

Submit the following items with the completed form:

Continuation Sheets

Maps

A USGS map (7.5 or 15 minute series) indicating the property's location.

A sketch map for historic districts and properties having large acreage or numerous resources.

Photographs

Representative black and white photographs of the property.

Additional items (Check with the SHPO or FPO for any additional items)

### Property Owner

(Complete this item at the request of the SHPO or FPO.)

name\_\_U.S. Army Corps of Engineers\_\_

street & number\_\_1000 Liberty Avenue,\_\_ telephone\_\_

city or town\_\_Pittsburgh\_\_ state\_\_PA\_\_ zip code\_\_

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 hours per response including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Services Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Project (1024-0018), Washington, DC 20503.

NATIONAL REGISTER OF HISTORIC PLACES  
CONTINUATION SHEET

Section   7   Page   1   Montgomery Locks and Dam  
name of property  
Beaver County, PA  
county and State

Montgomery Locks and Dam extends across the Ohio River at Mile Marker 31.7 and is situated about five miles west of Beaver, Pennsylvania. The facility is reached from Pennsylvania State Route 18. The facility consists of a concrete gated dam, two locks, and a series of operations buildings. The locks and operation buildings are located on the south bank of the Ohio River. The lock on the land side of the facility measures 110' x 600'. This lock is primarily used for barges and other large river craft. A second smaller lock measuring 56' x 360' is located on the river side of the facility and this lock is primarily used for locking through pleasure craft and other small river vessels. The locks are both reinforced concrete structures with steel mitred gates at each end of the lock. The land side lock has a concrete guide wall that extends for a number of feet up and downriver from the lock. The original powerhouse is located at the south end of the dam, and is a two-story flat roof concrete roof structure. A small flat roof operations building also survives, and sits on the wall that separates the 600' and 360' locks. Both of these structures were part of the original 1932-1936 facility. A newer service building sits on the south shore of the river, and is surrounded by a concrete esplanade.

The dam consists of twelve piers with ten steel vertical lift gates 100' wide and 16' high, and two 109' wide sections of fixed concrete weir, one at the north end of the dam, and a second at the south end. The concrete piers support a steel truss superstructure on which is mounted a large crane. A series of steel flat roof shelters at the tops of the piers accommodate the equipment used to raise and lower the dam gates. The entire width of the dam is 1,376.75'.

The overall concrete structure of the dam has not changed significantly since the construction of the gated dam from 1932-1936. The lock guard walls were extended in the 1960s. A 1989 rehabilitation involved replacement of the original lock turbines, resurfacing of some of the concrete walls, raising of the lock walls by 1 foot, upgrading of the steel lock gates, and construction of a new service building on the shore of the river. Overall, the structure has a remarkably high level of integrity considering its age and the heavy demands the are placed on the facility by locking activities and river conditions.

NATIONAL REGISTER OF HISTORIC PLACES  
CONTINUATION SHEET

Section   8   Page   1   Montgomery Locks and Dam  
name of property  
Beaver County, PA  
county and State

The Pittsburgh District constructed Ohio River Lock and Dams 4,5, and 6 between 1892 and 1910. Problems with temporarily deficient navigation pools in the area caused engineers of the U.S. Army Corps of Engineers Pittsburgh District to conclude that Locks and Dams 4, 5, and 6 should be replaced with a concrete gated dam. Construction of the new dam was authorized under the river and Harbors Act of 18 July 1918. The new complex, known as Montgomery Locks and Dam, named after nearby Montgomery Island, was built from 1932-1936 by the Booth and Flinn Company, supervised in part by engineer Don P. Keeler. The dam was a concrete structure with 10 vertical lift gates 100' wide and 16' tall. The new dam allowed for better control of the river's navigation pool in the area. The vertical lift gates used at Montgomery Locks and Dam were simple steel rectangular bulkheads that fit into slots in the concrete piers of the dam. Machinery at the tops of the piers is used to lift and lower these simple gates. The concept behind this type of gate design has existed since antiquity. The complex was also equipped with two concrete locks, each with two sets of steel mitred gates. One lock measures 110' by 600', while the other measures 56' by 360'. The locks allow river craft to pass through the project area, since Montgomery Dam's presence makes open channel navigation impossible.

Montgomery Locks and Dam was completed in the summer of 1936. Since then, the dam has been operated by the Pittsburgh District with few major changes. The guide walls that extend out from the landward wall of the 600' lock were extended in the 1960s, and a major rehabilitation of the facility in 1989 led to the upgrading of some of the dam gate machinery, installation of electrical controls for the dam gates, upgrading and replacement of some locking equipment, and the raising of the lock walls by 1'. A large service building was also constructed on the south shore as part of the 1989 rehab.

Montgomery Locks and Dam is historically significant. The original 1932-1936 dam was the first vertical lift gate dam built on the Ohio, and served as something of a prototype for the lift gate dam built at Emsworth. The Montgomery navigation pool has been used for over 60 years by thousands of towboats moving chemicals, steel, manufactured goods, coal, sand, and other commodities up and down the Ohio River. Montgomery is now one of only two vertical lift gate dams operating on the Ohio River.

The Ohio River Navigation System has played an important role in the history of Pittsburgh and the surrounding area. Inexpensive river transportation has spurred industrial growth in western Pennsylvania and along the entire stretch of the Ohio River. The Ohio River was a vital route for the transportation of strategic materials during World War II, and continues to be an important transportation artery. As a part of the Ohio River Navigation system,

Montgomery Locks and Dam has considerable historic significance, and is eligible for the National Register under Criterion A for its associations with the historic Ohio River Navigation System. The complex is also one of only two vertical lift gate dams built in the 1930s that survives on the Ohio River, and is therefore also eligible for the National Register under Criterion C for its engineering significance.

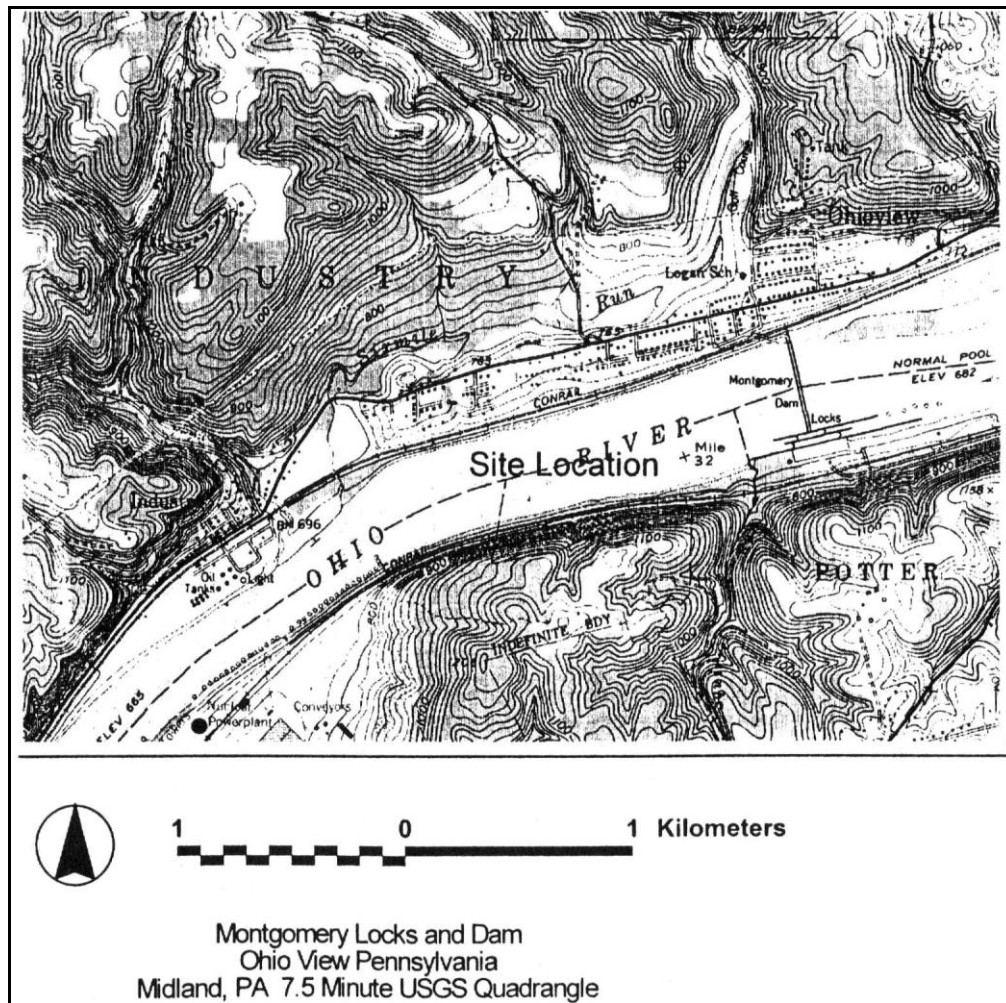
NATIONAL REGISTER OF HISTORIC PLACES  
CONTINUATION SHEET

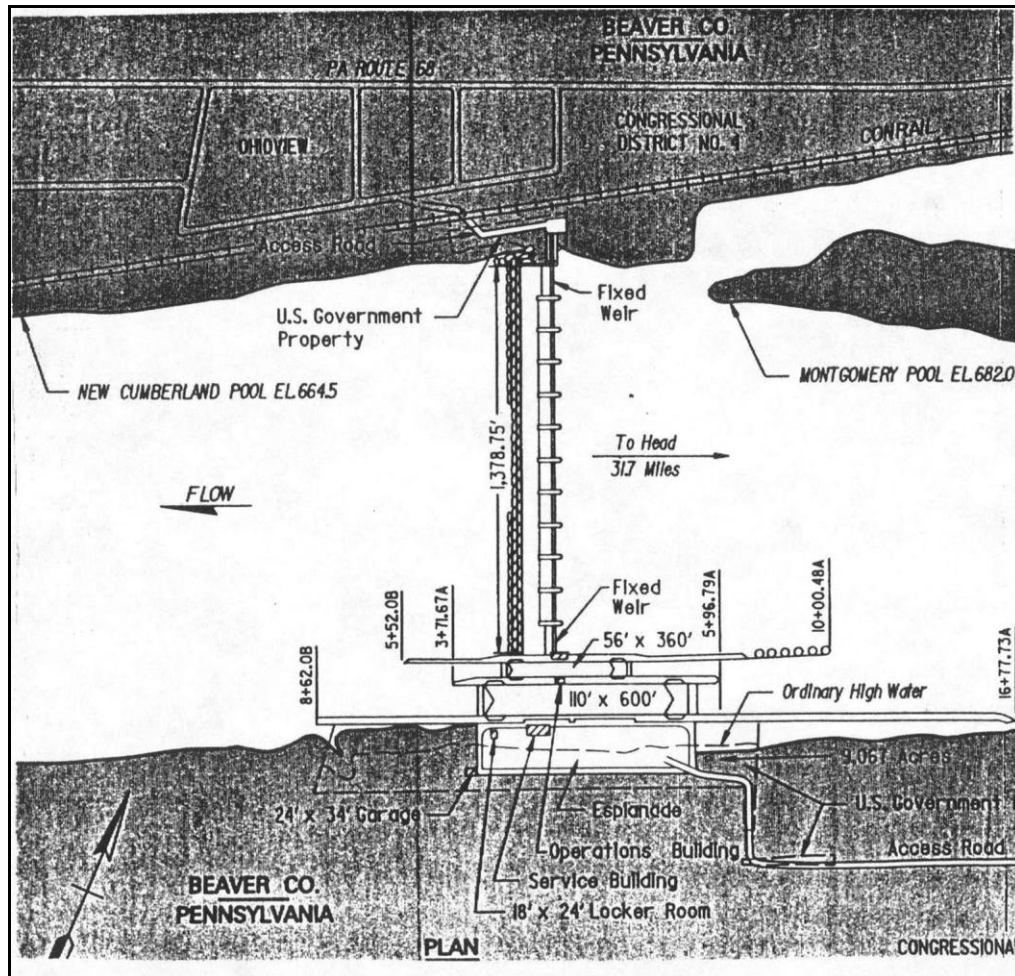
Section   10   Page   1   Montgomery Locks and Dam  
name of property  
Beaver County, PA  
county and State

**Boundary Description and Justification**

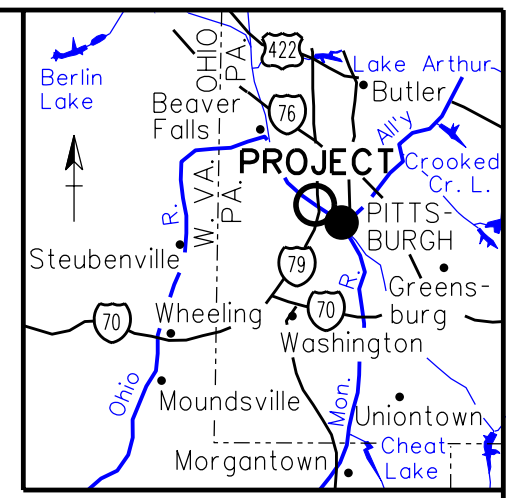
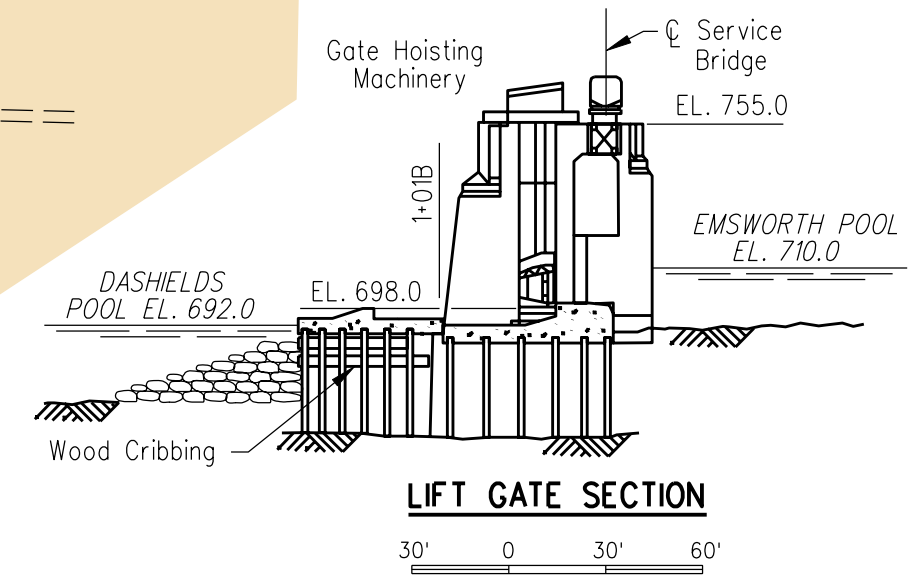
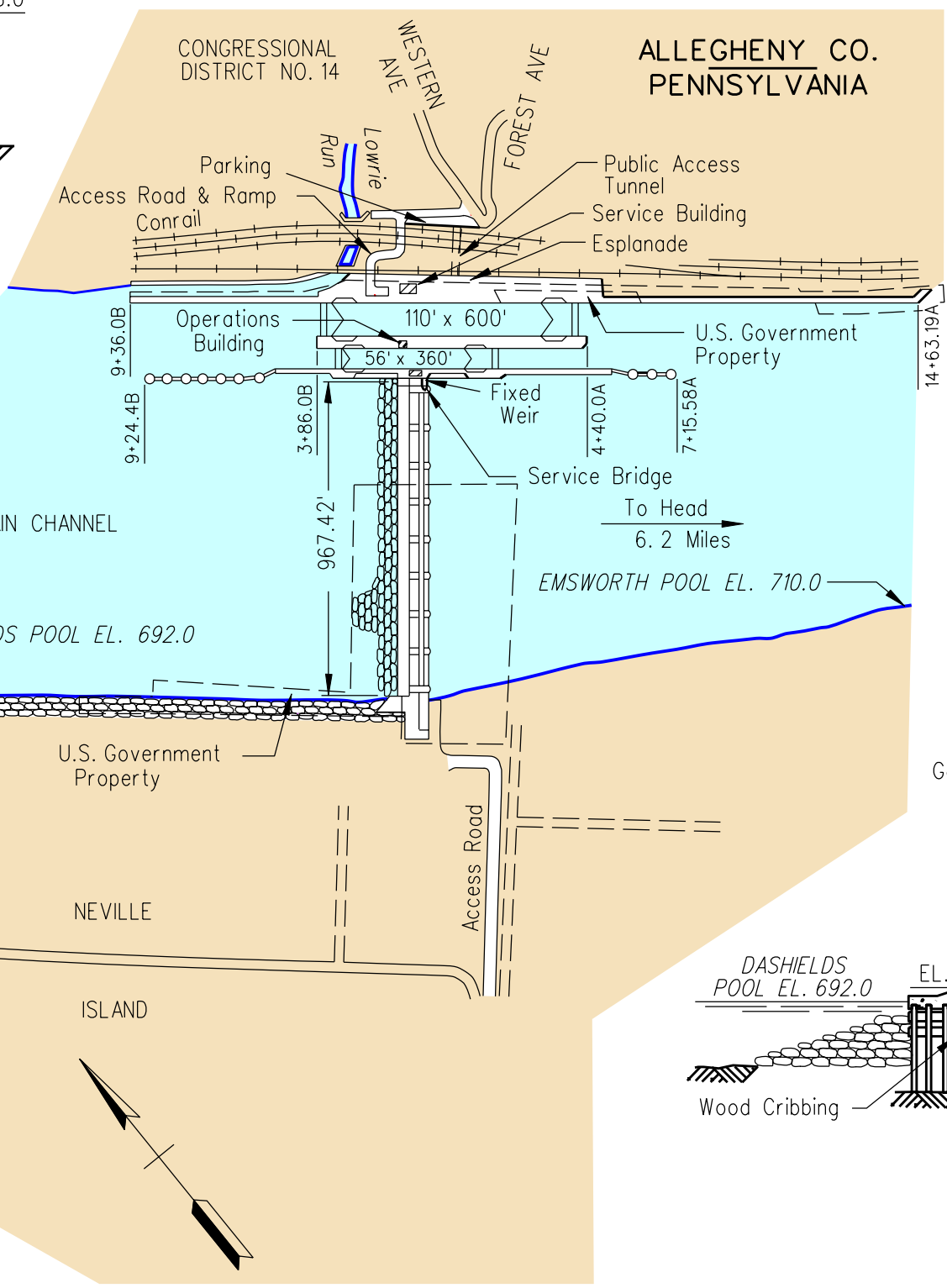
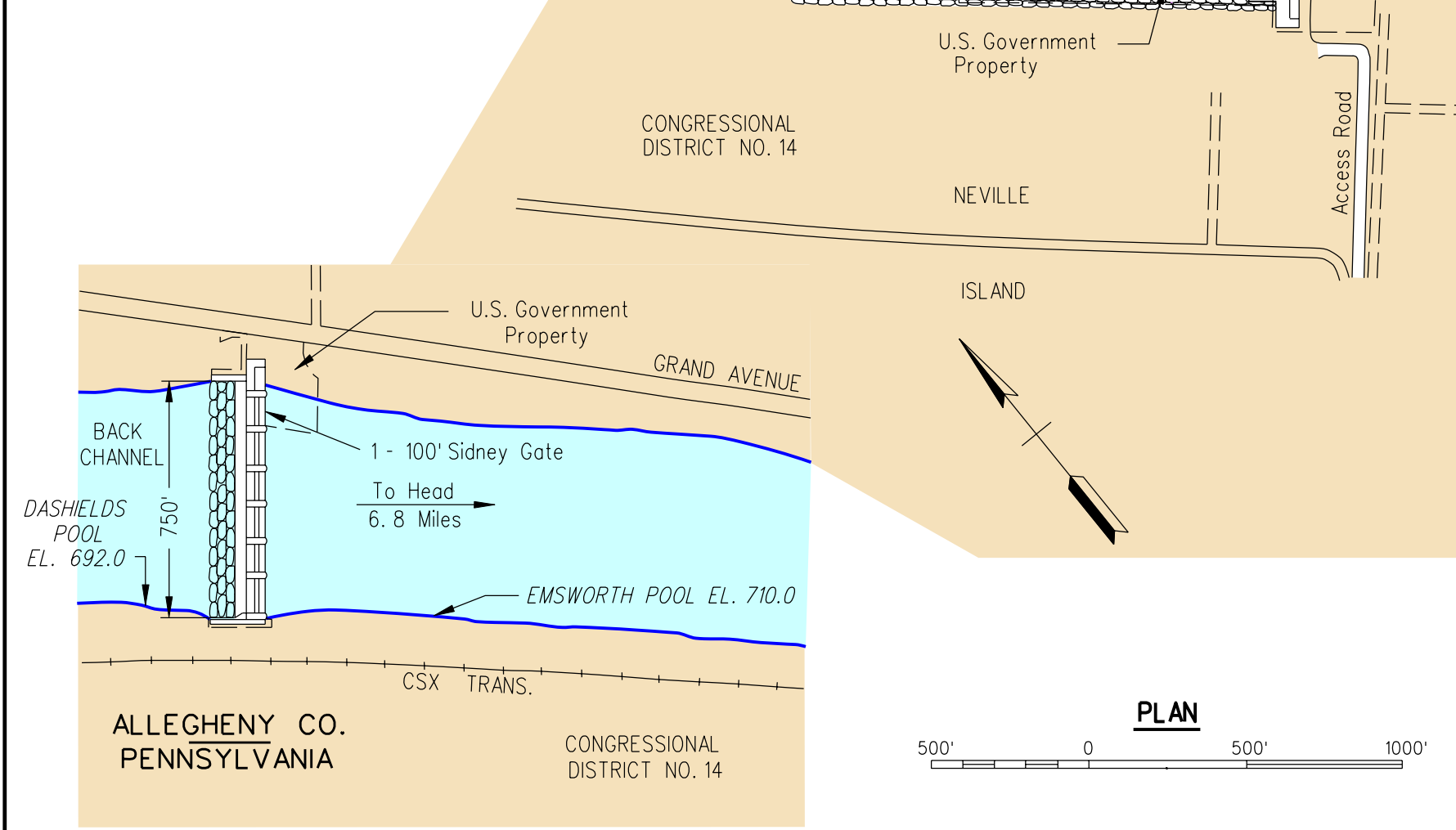
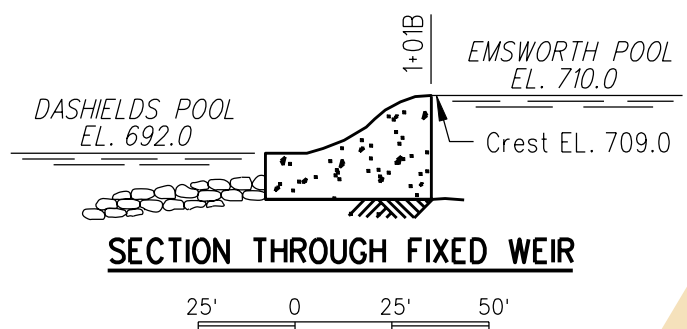
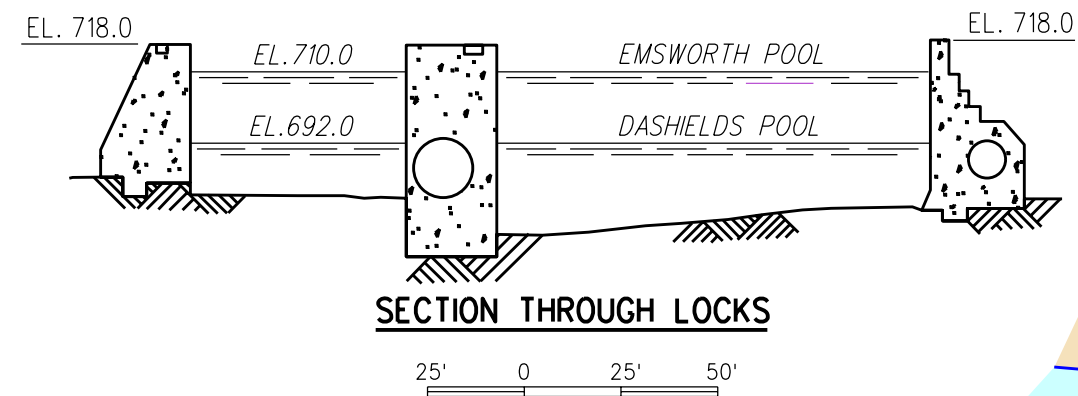
Boundaries for this property consist of all USACE Federally owned property at the site, including the lock and dam, power house, dwellings, and other service buildings.



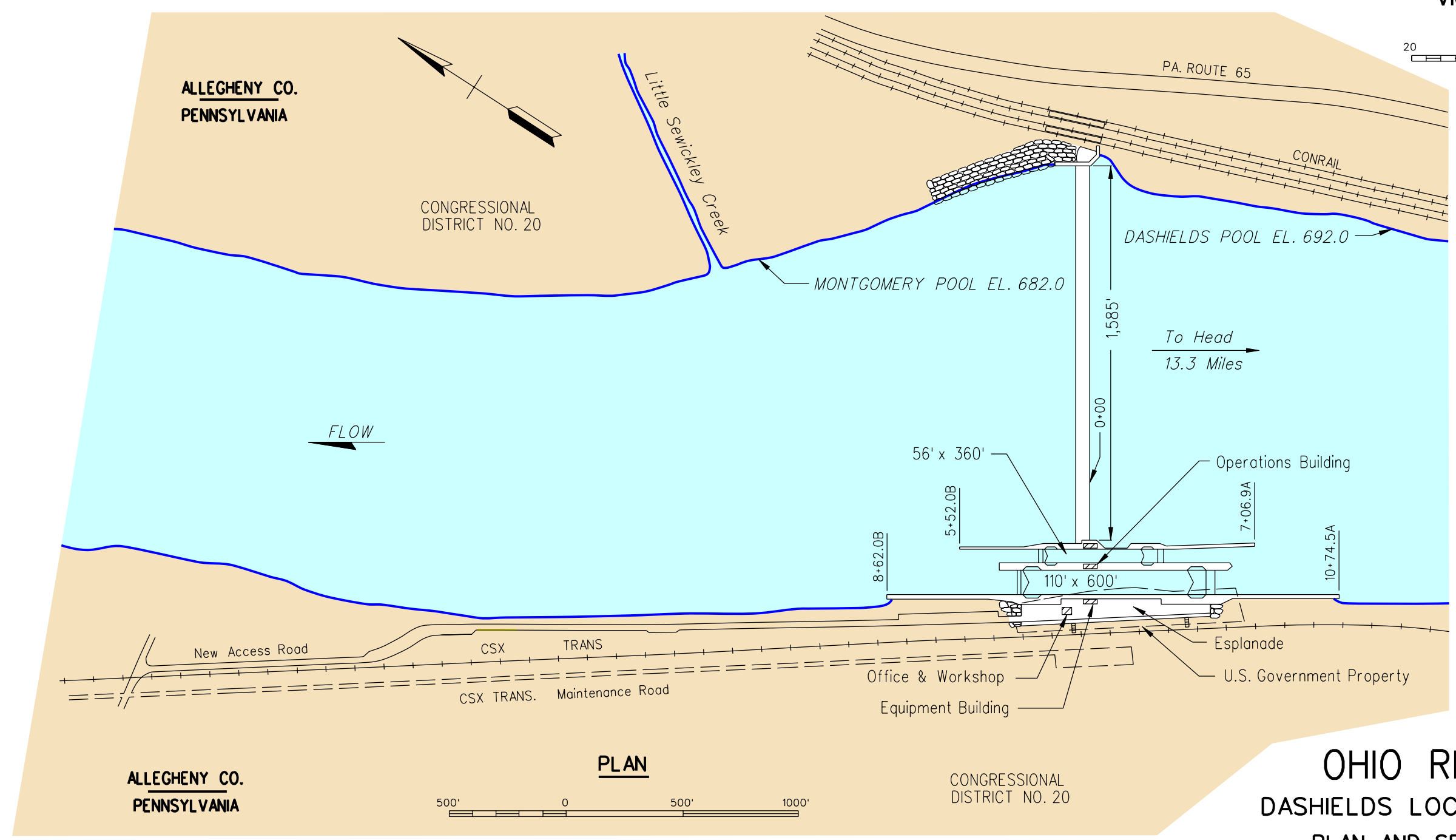
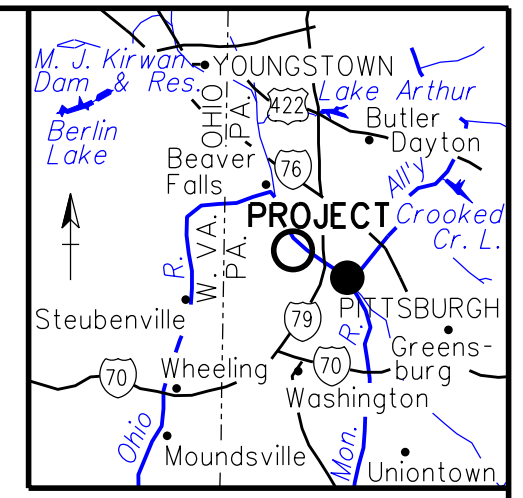
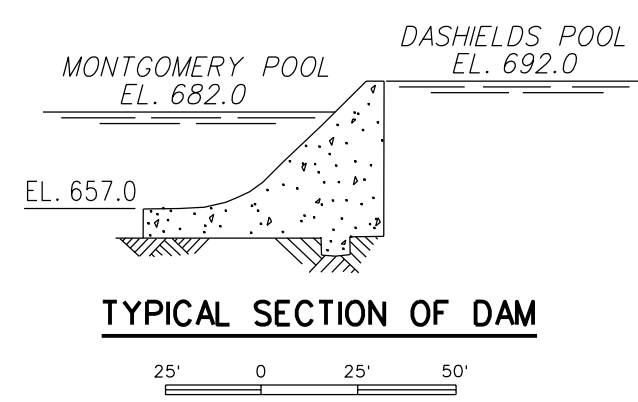
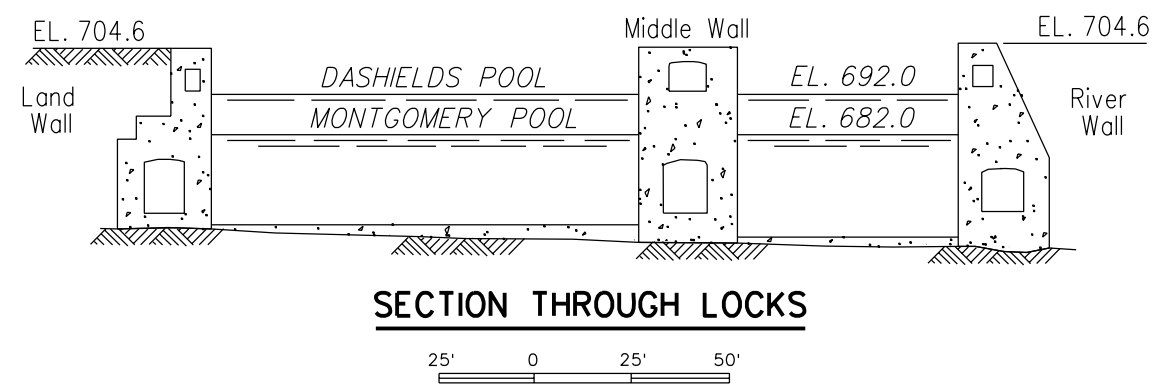








**OHIO RIVER**  
**EMSWORTH LOCKS & DAMS**  
**PLAN AND SECTIONS**  
 PITTSBURGH DISTRICT, PITTSBURGH, PA  
 Revised: 30 September 1992

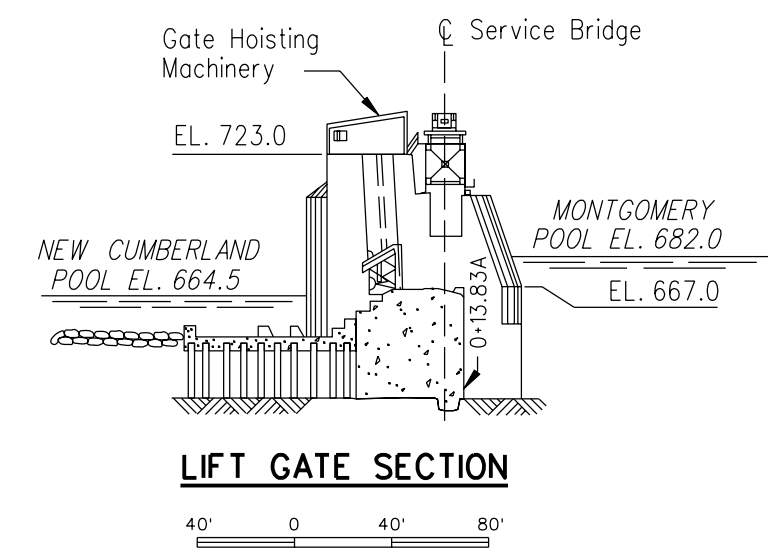
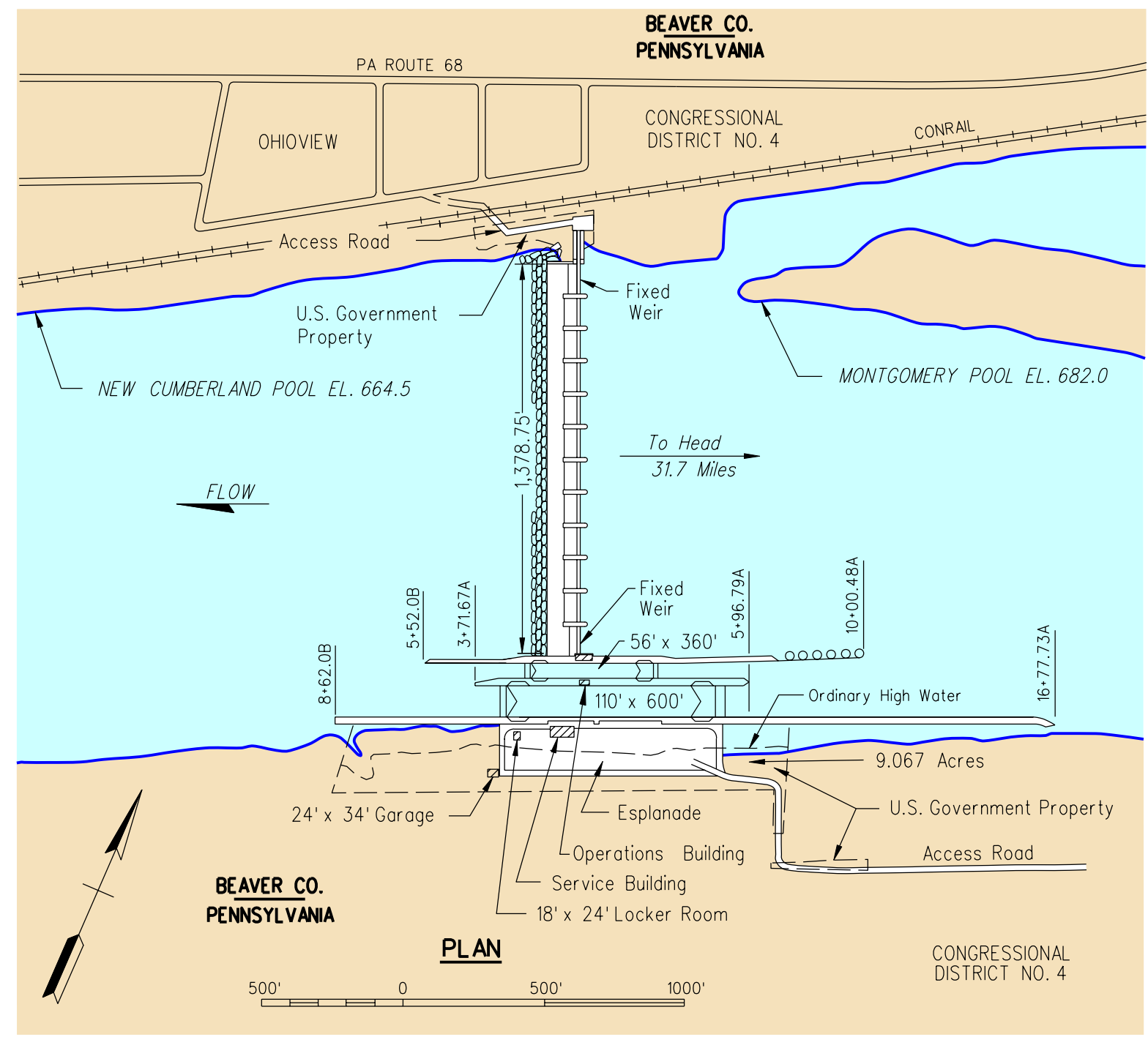
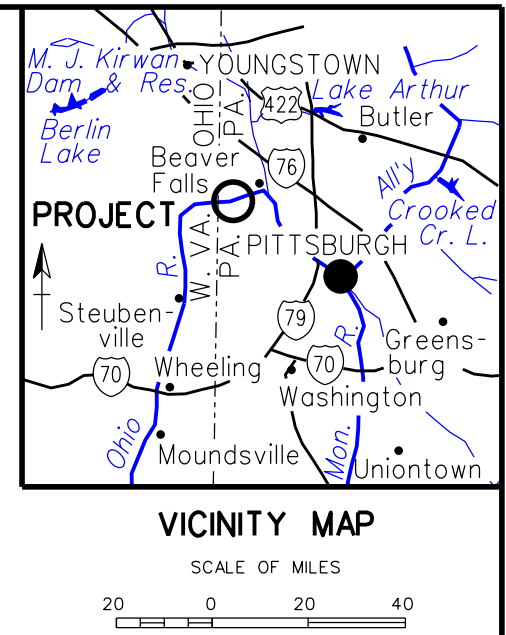
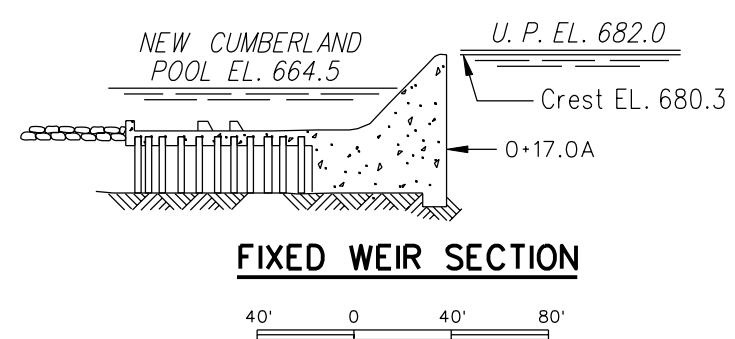
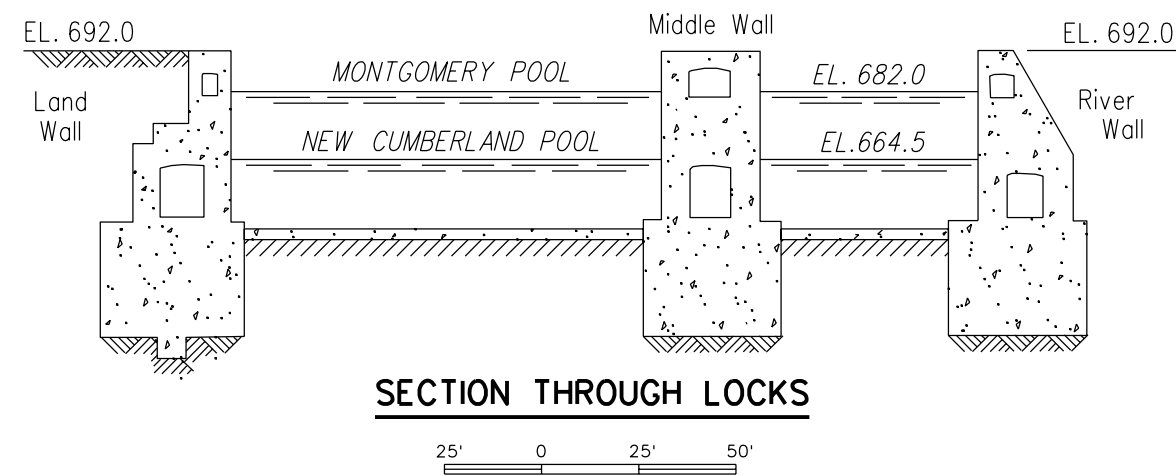


**OHIO RIVER  
DASHIELDS LOCKS & DAM**

**PLAN AND SECTIONS**

PITTSBURGH DISTRICT, PITTSBURGH, PA

Revised: 30 September 1992



**OHIO RIVER**  
**MONTGOMERY LOCKS & DAM**  
**PLAN AND SECTIONS**  
PITTSBURGH DISTRICT, PITTSBURGH, PA  
Revised: 30 September 1992

**Upper Ohio Work and Laydown Areas  
Phase II Archaeological Investigations  
Draft Excavation Plans**

Montgomery Primary Area 36BV131

Description: Multicomponent late 19<sup>th</sup>-early 20<sup>th</sup> century Historic with an unknown prehistoric occupation. The prehistoric component was previously recorded by amateur archaeologists but was never professionally investigated. A single prehistoric artifact was recovered from the Ph I. The Historic component is potentially represented by remnants of the Emerson house. Site size is approximately 152.4m x 28 m or 4267.2 m<sup>2</sup>.

Phase II work plan:

Conduct archival research including chain-of-title, census records, and available tax assessment records. Also conduct research on the Emerson house. Do a more thorough investigation of the recordation of the prehistoric component of the site.

Excavate a maximum of 100 STPs on a 5 m interval grid to refine the site boundaries, locate features and possible out-buildings, identify artifact densities, and characterize soil horizons across the site.

Information from the STPs will be used to determine placement of a maximum of 20 1m x 1m test units to be used to define and characterize features and recover information to determine NRHP eligibility. An additional 10 1m x 1m test units will be utilized to characterize the stone foundation and determine method of construction and utilization of the structure.

Geomorphological Studies – Montgomery Primary

Description: Due to its location on lower terraces along the Ohio River, there is the potential for intact deeply buried cultural deposits to be located at this construction support area.

Testing Plan: Excavate a series of backhoe trenches across the Montgomery Primary study area to be evaluated by a qualified geomorphologist/geoarchaeologist to determine the potential for buried cultural deposits to be present. With a positive determination, archaeological deep testing within Sites 36BV357 and 36BV131 will be conducted in accordance with SHPO guidelines.

## CONTINGENCY AREAS

### Geomorphological Studies – Montgomery Secondary

Description: Due to its location on lower terraces along the Ohio River, there is the potential for intact deeply buried cultural deposits to be located at this construction support area.

Testing Plan: Excavate a series of backhoe trenches across the Montgomery Secondary study area to be evaluated by a qualified geomorphologist/geoarchaeologist to determine the potential for buried cultural deposits to be present. With a positive determination, archaeological deep testing will be conducted accordance with SHPO guidelines.

### Dashiels Secondary Area 36AL600

Description: Multicomponent Historic and Prehistoric site with intact buried Ab horizon beneath a layer of fill at a ballfield and park. Historic component is likely from the former Locktenders houses. Prehistoric component is dated to Late Archaic (Diagnostic - Brewerton Side Notched projectile point). Site size is approximately 76 m x 18 m or 1368 m<sup>2</sup>.

Phase II work plan:

Conduct archival research including chain-of-title, census records, and available tax assessment records. Also conduct research on the Locktender's houses.

Excavate a maximum of 50 shovel test probes (STPs) at 5 m intervals across the site to characterize the extent of the buried Ab soil horizon, locate any extant remnants of the former locktender's houses and any other in-tact cultural features, and identify artifact densities across the site.

Information from the STPs will guide the placement of a maximum of 20 1m x 1m test units to be used to investigate any features and provide information to help make a determination of NRHP eligibility.



# **PHASE I CULTURAL RESOURCES ASSESSMENT**

## **Upper Ohio Navigation Study Emsworth, Dashields, and Montgomery Locks and Dams Allegheny and Beaver Counties, Pennsylvania PHMC-BHP ER# 1997-1617-042-F**

### **Prepared for:**

Aerostar Environmental, Inc.  
11181 St. Johns Industrial Parkway, N  
Jacksonville, Florida 32246  
and  
U.S. Army Corps of Engineers, Pittsburgh District  
2200 William S. Moorhead Federal Building  
1000 Liberty Avenue  
Pittsburgh, PA 15222-4186

### **Prepared by:**

GAI Consultants, Inc.  
Pittsburgh Office  
385 East Waterfront Drive  
Homestead, PA 15120-5005  
(412) 476-2000

November 3, 2009 (Rev. 1/12/2010)





# PHASE I CULTURAL RESOURCES ASSESSMENT

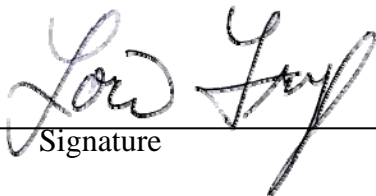
Upper Ohio Navigation Study  
Emsworth, Dashields, and Montgomery Locks and Dams  
Allegheny and Beaver Counties, Pennsylvania  
PHMC-BHP ER# 1997-1617-042-F

## Prepared for:

Aerostar Environmental, Inc.  
11181 St. Johns Industrial Parkway, N  
Jacksonville, Florida 32246  
and  
U.S. Army Corps of Engineers, Pittsburgh District  
2200 William S. Moorhead Federal Building  
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## Prepared by:

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With contributions by Alyssa Trimmer, MPhil., RPA  
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(412) 476-2000



---

Signature

November 2009 (Rev. 1/12/2010)

Date

Principal Investigator:  
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[l.frye@gaiconsultants.com](mailto:l.frye@gaiconsultants.com) – 412.476.2000 x1205



## Abstract

From July to December 1, 2009, GAI conducted a cultural resource assessment as part of the Upper Ohio Navigation Study and Environmental Assessment, Emsworth, Dashields, and Montgomery Locks and Dams, Allegheny and Beaver counties, for the US Army Corps of Engineers, Pittsburgh District, and Aerostar Environmental Services, Inc. The Upper Ohio Navigation Study includes three Primary and three Secondary work and staging area locations, totaling 119.8 acres. The purpose of this study is to provide cultural resource characterizations of these six potential work and staging area locations for a National Environmental Policy Act Environmental Impact Statement, which will accompany analyses that discuss suitability of lands necessary to conduct proposed work at Emsworth, Dashields, and Montgomery Locks and Dams.

A pedestrian reconnaissance was conducted for all six study areas to assess ground conditions and identify any architectural resources. Three of the six areas were heavily disturbed by industrial activities and did not require cultural resources investigations. Portions of the remaining three areas (covering about 55 acres) appeared to have intact soils; these three areas were subjected to cultural resources investigations (limited subsurface archaeological investigations and an architectural survey).

Three archaeological sites (36AL600, 36BV131, and 36BV357) and an isolated find were identified and evaluated. Site 36AL600, located at the Dashields Secondary study area, is a Late Archaic campsite and a historic site measuring approximately 76x18 m (250x60 ft) within an intact buried A horizon. The historic artifacts may be associated with a former ca. 1920s locktender's house. It is recommended that Site 36AL600 is potentially eligible to the National Register of Historic Places (NRHP) under Criterion D. Avoidance is recommended or, if avoidance is not feasible, Phase II archaeological investigations should be conducted to determine site eligibility (both prehistoric and historic components) for the National Register.

Site 36BV357, situated within the Montgomery Primary study area, is a small 15 m (50 ft) in diameter lithic scatter of unknown temporal affiliation. This site does not possess the potential to contribute significant information to the prehistory of the Upper Ohio River Valley and fails to meet the minimum criteria for listing on the National Register. No additional work is recommended.

Site 36BV131 is situated south of the Montgomery Dam on a river terrace. This previously recorded prehistoric site was originally delineated to cover the floodplain and terraces between the river and a railroad line. Subsurface investigation produced a small quantity of prehistoric ( $n=1$ ) and historic artifacts ( $n=42$ ) within a 152.4x28 m (500x92 ft) area and one historic isolated find. The lack of features and paucity of artifacts limit the research value of the prehistoric component, and no additional work is recommended.

The historic component of Site 36BV131 includes a house foundation remnant, garage, and artifact scatter in the vicinity of a house depicted on a 1904 map and in the general vicinity of a house depicted on 1876 and 1877 maps. Based on photographs provided by the US Army Corps of Engineers, Pittsburgh District, this house was abandoned by 1932. A driveway that appears on both the 1939 and 1958 aerial photographs enters the area from the south and then runs from the front of the Unnamed Garage (recorded as an architectural resource over 50 years

old) toward the Kenyon-Emerick house foundation remnant (part of the historic archaeological site component of 36BV131). The Unnamed Garage was recommended not eligible under Criterion A-C (prior to its destruction by fire). Further research is needed to evaluate whether the historic component of this site possesses the potential to add important information to our understanding of the history of this region (Criterion D) during the late-nineteenth to early-twentieth century. The research should also address whether the archaeological component of the former Unnamed Garage is associated with the occupation of the former Kenyon-Emerick house or it represents a later historic component. Therefore, it is recommended that this site be avoided and if avoidance is not feasible, it is recommended that Phase II investigations be conducted to evaluate the historic component of this site under Criterion D.

The architectural and historical survey identified two resources within the Upper Ohio Navigation Study area. The property types include a railroad (the Pittsburgh and Ohio Valley Railway) and a garage (associated with Site 36BV131). Based on the National Register Criteria for Evaluation, neither resource is recommended eligible for NRHP listing. The Pittsburgh & Ohio Valley Railway does not stand out as exemplary in the history of transportation improvements, commerce, and corporate capitalism in southwestern Pennsylvania. The garage lacks integrity, historical significance, architectural merit, and historical association with significant events or individuals. No additional documentation is recommended for these two resources. Subsequent visits to the project area during October–December 2009 revealed that the unnamed garage was destroyed by fire and was not available for future examination.

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## 1.0 Introduction

The U.S. Army Corps of Engineers, Pittsburgh District (District), contracted with Aerostar Environmental Services, Inc. (AES) and its subconsultant, GAI Consultants, Inc. (GAI), to conduct a cultural resource assessment as part of the Upper Ohio Navigation Study—a feasibility planning study for alternatives to modernize the Emsworth, Dashields and Montgomery Locks and Dams (L&D) facilities on the Ohio River. The Upper Ohio Navigation Study identified three Primary and three Secondary potential work and staging areas (study areas) in Allegheny and Beaver counties, Pennsylvania, near these three navigation facilities (Figures 1-3).

The purpose of this study is to provide cultural resource characterizations of these potential work and staging area locations for a National Environmental Policy Act (NEPA) Environmental Impact Statement (EIS). The EIS will accompany the planning analyses that discuss identification and suitability of lands (Primary and Secondary work and staging areas) necessary to conduct any proposed work at these navigation facilities.

For the purpose of this study, the District obtained rights-of-entry for the 12 parcels that comprise the six study areas (Figures 4-6) (Table 1). Emsworth Primary study area consists of one 17.2-acre parcel located between the north bank of Neville Island and Neville Road just east of Emsworth Dam. Emsworth Secondary study area includes three parcels totaling 15.0-acres situated between the north bank of Neville Island and Neville Road to the west of Emsworth Dam. Three parcels, totaling 24.9 acres, comprise the Dashields Primary study area, which is located northwest of Dashields Dam between the north bank of the Ohio River and Ohio River Boulevard. Dashields Secondary study area covers 8.2 acres in one parcel situated between the south bank of the Ohio River and Dashields Lock Road.

Montgomery Primary study area consists of three parcels totaling 22.2-acres, generally located between Montgomery L&D and a railroad track on a terrace. Montgomery Secondary study area consists of one 32.3-acre parcel located along the south bank of the Ohio River east of Montgomery L&D.

**Table 1. Study Locations and Cultural Resources Testing Required under SOW**

Location	Number of Parcels	Total Size (ac.)	Cultural Resource Testing (as specified in the SOW)
Emsworth Primary	1	17.2	No Field Testing
Emsworth Secondary	3	15.0	No Field Testing
Dashields Primary	3	24.9	3 backhoe trenches, about 30 Shovel Probes (SPs)
Dashields Secondary	1	8.2	About 15 SPs
Montgomery Primary	3	22.2	About 40 SPs
Montgomery Secondary	1	32.3	No Field Testing
<b>Total</b>	<b>12</b>	<b>119.8</b>	<b>3 backhoe trenches and about 85 shovel probes + up to 5 radial SPs</b>

**Figure 1. Overview of Emsworth Study Areas**

**Figure 2. Overview of Dashiels Study Areas**

**Figure 3. Overview of Montgomery Study Areas**



**Figure 4. Emsworth Primary and Secondary Work Areas (light blue areas only). Source: USACE Statement of Work**

**Figure 5. Dashiels Primary and Secondary Work Areas (light blue areas only). Source: USACE Statement of Work**

**Figure 6. Montgomery Primary and Secondary Work Areas (light blue areas only).  
Source: USACE Statement of Work**

The Area of Potential Effect (APE) for archaeological, architectural, and historical resources was defined in consultation with the District as the footprints of the six Primary and Secondary study areas. All six Primary and Secondary study areas were subjected to a pedestrian reconnaissance. Subsurface archaeological investigations were restricted to Dashields Primary, Dashields Secondary, and Montgomery Primary study areas, per the Statement of Work (SOW) (Appendix A). The architectural survey covered any structure or building within or immediately adjacent to the APE. The District specified that up-to-date Pennsylvania Historic Resource Survey (PHRS) forms for the three locks and dams (Emsworth, Dashields and Montgomery) were on file at the Pennsylvania Bureau for Historic Preservation (BHP) and should be included in the report but not updated as part of this study (Appendix C).

Based on the SOW and the pedestrian reconnaissance, the cultural resources consultant agreed with the District's evaluation that the Primary and Secondary areas for Emsworth L&D and the Secondary area for Montgomery L&D were located in heavily disturbed industrial settings and did not warrant a cultural resources assessment survey. The remaining areas were subjected to subsurface archaeological testing. However, initial archaeological investigations at Dashields Primary revealed that the area was covered by a thick slag deposit (typically capped with modern fill) that could not be penetrated by an excavator after one day of machine time. The District modified the contract to eliminate further attempts at subsurface archaeological testing (machine-excavated trenches and shovel probes) in this study area.

The cultural resource study, which includes the identification and preliminary evaluation of cultural resources at each of the sites, was performed in accordance with the SOW (Appendix A) between July 13-27 and November 24-December 1, 2009, and is consistent with the Phase I survey requirements of the Pennsylvania Bureau for Historic Preservation's (2008) Cultural Resource Management in Pennsylvania: Guidelines for Archaeological Investigations, and Section 106 of the National Historic Preservation Act (NHPA) of 1966. Each work area and associated property over 50 years old was assessed and reported separately within this cultural resources assessment study report.

Lori Frye, M.A., RPA, was the Principal Investigator and co-authored this report with Megan Otten, B.A., Architectural Historian, who conducted background research at the BHP (including the PASS files and National Register of Historic Places files), and conducted the architectural survey. Alyssa Trimmer, MPhil, RPA, conducted online background research (CRGIS files) and contributed to this report. Senior Staff Soil Scientist Dr. David Cremeens, CPSSC, supervised the geomorphic trench soundings. Mark A. Frank also contributed to this report, and Amanda Wasielewski prepared figures.

## **2.0 Environmental Setting**

### **2.1 Physiography and Geology**

The study areas fall within the unglaciated Pittsburgh Low Plateau section of the Appalachian Plateaus Province (Berg et al. 1989; Fenneman 1938; Thornbury 1965). Relatively flat lying, predominately clastic rocks that are higher in elevation and younger in age than surrounding provinces (Thornbury 1965) characterize the Appalachian Plateaus Province. The unglaciated Pittsburgh Low Plateau section is typified by undulating surfaces, narrow shallow valleys, and less folding and uplifting than adjacent sections of the Appalachian Plateau. Drainage patterns are generally dendritic with both the Allegheny and Beaver rivers serving as major drainageways for Late Wisconsin glacial outwash.

The sedimentary bedrock found in Allegheny and Beaver counties consists of sandstone, coal, shale, limestone, and siltstone, which may be visible along embankments. Bedrock geology for these areas falls within the Conemaugh Group, an upper Pennsylvanian-age deposit, and the Allegheny Group, a middle Pennsylvanian-age deposit (Socolow 1980). The Allegheny Group represents upper delta plain facies while the Conemaugh Group is associated with lower delta plain facies (Wagner et al 1970).

The Conemaugh Group is divided into the stratigraphically higher Casselman Formation and the lower Glenshaw Formation; Ames limestone separates these two formations. The Casselman Formation is comprised of a cyclic sequence of shale, sandstone, siltstone, marine limestone, and red beds (associated with slides) formed in a lower delta environment. Thin, non-persistent coal beds are also present. The Glenshaw Formation is identified by widespread marine limestone and shale units found in stratigraphic succession (Edmunds et al 1999).

### **2.2 Hydrology, Soils and Geomorphology**

Soil surveys for Beaver and Allegheny counties indicate that the Ohio River valley is mapped with Pope Association in the floodplains, and Conotton Association on high terraces. Pope soils are well drained and began to form in the Late Holocene. Conotton soils are well drained to excessively drained soils that formed in glacial outwash materials on kames and terraces. In the Montgomery Primary Area, the soils fall within the Conotton gravelly loam, 8-15 percent slope (CoC), except on the west side of Squirrel Run, where the soils are part of the Weikert Rock outcrop complex, 25-80% slope (WeF) (Smith 1982). Soils in the Montgomery Secondary Area consist of Urban Land-Conotton complex, 3-8% slope (UfB). Urban Land, characterized by level to nearly level lands on the floodplain covered by over two feet of fill material (Urban Land-Conotton complex is also found at Emsworth Primary and Secondary, and Dashiels Primary) (Newbury et al. 1981). At Dashiels Secondary, the soils were mainly comprised of Rainsboro silt loam (RaB), 3-8 percent slope, but also include a small area of Gilpun-Upshur complex, very steep soils (Newbury et al. 1981).

### **2.3 Modern and Past Climates**

During the Wisconsin glaciation of the Pleistocene, the Laurentide ice sheets reached their maximum extent in eastern North America between 21,000 and 17,000 B.P., extending as

far south as the northern Beaver County line in western Pennsylvania (Crowl and Sevon 1999:226).

The environment of southwestern Pennsylvania has undergone dramatic changes throughout the last 17,000 years. Palynological data revealed a boreal spruce forest dominated southwestern Pennsylvania 17,000 years ago (Delcourt and Delcourt 1980:145-147). North America experienced relatively rapid climatic warming between 14,000 and 11,000 years ago as pollen evidence indicates a Mixed Coniferous-Northern Hardwood, dominated by spruce and pine, migrated into much of the Midwest (Delcourt and Delcourt 1980:147; Gates 1993:84; Stingelin 1965). Data from New Paris No. 4, Bedford County, Pennsylvania (Guilday et al. 1964) and Hartstown Bog, Crawford County, Pennsylvania (Walker and Hartman 1960), suggest ameliorating boreal forest conditions at approximately 11,000 B.P. Similarly, at Mt. Davis Marsh near Meyersdale in Somerset County, Pennsylvania, pollen indicates the vegetation was dominated by spruce, pine, and fir (Stingelin 1965:50).

Cave and sinkhole deposits in Bedford and Centre Counties revealed that between 11,300 and 9000 BP, the climatic shift to a more temperate environment coincided with the disappearance of “Pleistocene megafauna” and introduction of more temperate mammal species (Guilday 1967; Kurten and Anderson 1980). Vertebrate and pollen remains found at Meadowcroft Rockshelter indicate that by 11,500 B.P. the region had temperate “Carolinian” fauna, as well as oak, hickory, and pine forest, suggesting the initial emergence of the Mixed Mesophytic forest (Adovasio et al. 1998:11). This more temperate climate marks the beginning of the Holocene.

The gradual climate warming and drying trend during the hypsithermal interval, between 10,000 and 5000 B.P., led to a decline in cool-adapted boreal forest species including at such paleoenvironmental sites as Mt. Davis Marsh, Tannersville Bog, and Potts Mountain Pond (Davis 1984:178; Joyce 1988:197).

The decreased precipitation and higher temperature lead to an increase in hardwood species migrating northward. An oak-hickory-hemlock-beech assemblage dominated this Mixed Hardwood Forest (Delcourt and Delcourt 1980:143, 150). By 4000 B.P., the climate was essentially the same as the modern climate.

Currently, the region has a humid, continental climate with warm summers and cold winters and a relatively even yearly distribution of precipitation (Newberry et al. 1981; Taylor et al. 1968; Trewartha 1967). In the Appalachian Plateaus Province, winters are cold, snowy, and cloudy with 35% to 40% possible sunshine. Allegheny County has an average daily high temperature of 83° F in July and an average daily low temperature of 19°F in January (Newberry et al. 1981). Annual precipitation ranges from 36-40 inches a year. Beaver County has a similar climate with an average temperature of 30°F in January and the annual precipitation averages 38 inches a year (Taylor et al. 1968).

## **2.4 Flora**

The study areas fall within a massive Mixed Mesophytic forest (Braun 1950) that became entrenched during the Holocene (Guilday et al. 1964). These forests typically include canopies of beech, chestnut, maple, tulip trees, basswood, red oak, white oak, buckeye, and hemlock.

Smaller trees can include dogwood, redbud, sourwood, ironwood, magnolias, holly, hornbeam, and serviceberry (Braun 1950:43). These forests provided vast quantities of nut masts for Native American exploitation, including walnuts, butternuts, hickory nuts, and chestnuts.

## **2.5 Fauna**

Prehistoric faunal assemblages in the Appalachians reveal a rich and diverse fauna for forager exploitation. White tailed deer was the most common species identified. Other species available for use by prehistoric populations include black bear, elk, bobcat, wolf, cougar, river otter, raccoon, squirrel, rabbit, fox, beaver, and woodchuck. Except for the extinction of certain large animals (elk, wolf, and cougar) and increases in other species populations, such as white-tailed deer, turkey, and woodchuck, the faunal composition of the area is little changed from early historic times (Shelford 1963). Avian and aquatic species also formed part of the subsistence base.





### **3.0 Cultural Setting**

The following summaries of the prehistory of southwestern Pennsylvania, including Allegheny and Beaver counties, provide an archaeological and historical context for assessing potential site significance.

#### **3.1 Paleoindian (11,500 to 10,000 BP)**

The earliest occupation of North America occurred during the Paleoindian period prior to 8000 B.C. Radiocarbon dates of 10,000 BP to 11,000 BP have been recorded at Meadowcroft Rockshelter in southwestern Pennsylvania (Adovasio et al. 1978). Based on the distribution of diagnostic artifacts, typically made of exotic lithic raw materials, Paleoindian populations were highly mobile bands of hunters and gatherers who inhabited major river valleys and focused their travels along low-order stream and river valleys (Lantz 1984). Sites are marked by artifact scatters of fluted stone spear points and flake tools used for cutting and scraping tasks.

Lantz (1984) reports 210 sites with Paleoindian components in the drainage of the Upper Ohio Valley in western Pennsylvania. The majority of Paleoindian points and sites are found on lowland terraces of small tributaries in the glaciated portions of northern Pennsylvania. In unglaciated regions, such as in the present study area, Paleoindian sites were found in elevations that are more diverse and that exhibit less spatial patterning (Lantz 1985:180).

#### **3.2 Archaic Period**

##### **3.2.3 Early Archaic (10,000 to 8000 BP)**

The beginning of the Archaic period in eastern North America is generally associated with the onset of the Holocene, which directly followed the end of Pleistocene glaciation. This period is not well understood but it appears that groups were highly mobile and may have sustained a significant population increase (Carr 1998a:49, 60 and Stewart and Kratzer 1989). Sites are more common near the confluence of streams (Adovasio et al. 1998:18). The warmer, drier, climate meant that Early Archaic foragers did not have mega-fauna available and instead procured a more diversified set of resources than their Paleoindian ancestors.

A technological change in projectile point manufacture and forms, from fluted to notched and stemmed bifaces, is believed to represent changes in the hafting of these projectiles to dart or spear shafts. Early Archaic diagnostic projectile point types in the Upper Ohio Valley include Kirk corner-notched, Kirk stemmed, LeCroy, and Kanawha stemmed points (Raber et al. 1998).

##### **3.2.4 Middle Archaic (8000 to 5000 BP)**

The Middle Archaic is poorly understood. Middle Archaic settlement in western Pennsylvania likely consisted of base camps positioned on Holocene-age river terraces, smaller resource procurement stations (for plant and animal acquisition) in upland settings, and lithic reduction stations near outcrops of suitable stone for tool manufacture (Carr 1998b; Cowin 1991; George 1985; Stewart and Kratzer 1989). Carr (1998b:88) notes a significant population increase during the Middle Archaic based on PASS site file data. Point types indicative of the Middle

Archaic period typically include Stanly, Big Sandy II, and Otter Creek points, with rare examples of Morrow Mountain and Guilford type bifaces (Cowin 1991:46).

### 3.2.5 Late Archaic (5000 to 3000 BP)

The Late Archaic period witnessed major environmental changes, including a continued rise in sea level and the increased availability of estuarine resources. These environmental changes affected cultural changes, including continued population growth, an increased shift to logistically oriented subsistence/settlement patterns, and the establishment of exchange networks. Late Archaic Native American populations on the Appalachian Plateau developed a well-defined schedule of resource exploitation. Site types include large, perhaps multi-seasonal, base camps generally associated with larger rivers, suggesting intensified exploitation of riverine resources; small, short-term upland base camps; and extraction sites found in both upland and lowland areas (Stewart and Kratzer 1989).

Diagnostic artifacts of this time period include Lamoka, Steubenville stemmed and lanceolate points, Brewerton notched points, and varieties of broad-bladed and narrow-stemmed projectile points (Mayer-Oakes 1955; George 1985). There is also an increase in the use of “non-projectile point flaked stone” technologies, including expedient flake tool and non-lithic types. Adovasio et al. (1998:20) interpret these data to mean that there was “a greater array of functional activities and techno-economic strategies involving the base camps of this period.”

## 3.3 Woodland

### 3.3.1 Early Woodland (3000 BP to 2100 BP)

Diagnostic Early Woodland traits include the introduction and utilization of ceramic vessels and the increased reliance on horticulture and sedentism (Cowin 1985). The emergence of the Adena cultural complex in the Central Ohio Valley influenced groups eastward into New York and New Jersey, and directly involved populations in western Pennsylvania. Accretional burial mounds and other earthworks, constructed between 400 BC and AD 250 (Mayer-Oakes 1955; Dragoo 1963; Clay 1991), reflect Adena and Adena-related Early Woodland occupations in the upper Ohio Valley.

Ceramics generally function as cultural horizon markers for archaeologists who study the Woodland period. Early Woodland pottery is characterized as thick-walled, flat-bottomed, and coarse grit-tempered. Diagnostic projectile points include Adena and Cresap Stemmed points. Ethnobotanical remains from various Early Woodland sites suggest that, while domesticates were introduced, they were dominated by the use of widely available wild plant foods (Adovasio and Johnson 1981; Ballweber 1989).

### 3.3.2 Middle Woodland (2100 BP to AD 900)

The Middle Woodland period is characterized by an elaboration in burial ceremonialism, widespread interregional exchange, and increased importance of indigenous cultigens. The first use of maize as a cultigen may date to this period. After the end of Adena-related ceremonialism circa AD 250, the Hopewell complex flourished and brought cultures in western Pennsylvania directly and/or indirectly into its exchange networks (Kent et al. 1971). Large, multiseasonal base camps or villages focused on terraces above major streams, and smaller, seasonal base camps and extraction loci located in the uplands are typical of the Middle Woodland settlement

pattern (MacDonald 2003). Diagnostic projectile points include a variety of notched and expanding stemmed forms, while ceramic vessels continue to be grit tempered with cord marking a common surface treatment (MacDonald 2003).

### 3.3.3 Late Woodland (AD 900 to 1600)

The Late Woodland period in southwestern Pennsylvania was typified by a complex of cultural traits identified as Monongahela. Monongahela sites have been recorded across much of western Pennsylvania, with a core of settlement centered near the Monongahela and Youghiogheny rivers (Cowin 1985; Johnson et al. 1989). During this period, subsistence activities shifted to a heavy reliance on maize production. Large, multi-seasonal villages characterized Late Woodland settlement pattern. These villages were generally circular, were often fortified with a round or oval stockade, and were typically situated on upland hilltops and saddles. Houses were arranged around a central circular plaza and were abutted by large circular storage pits (Bennett and Porter 1986:17). Social organization became more complex during the Late Woodland period and led to the emergence of tribal societies. Chesser notched, Jack's Reef corner-notched, Levanna and Hamilton triangular points (Justice 1987), as well as Backstrum side-notched (George 1992), are all diagnostic projectile points of the Late Woodland.

### 3.4 Protohistoric and Contact Period (AD 1600-1758)

The Protohistoric/Contact period represents a change from the Late Woodland subsistence-settlement systems. Sites documenting the Monongahela/Protohistoric transition and the early Protohistoric/Contact period include the Foley Site and the Throckmorton Site (Nass 1995:81) in western Pennsylvania. These sites represent Monongahela-like lifeways on which increasing trade and conflict were superimposed. During Early Contact times, western Pennsylvania was occupied by a variety of Native American groups, most notably the Iroquois, the Shawnee, and the Delaware (Goddard 1978; Hunter 1978; Lounsbury 1978).

### 3.5 Historic Period (1758-1950)

Europeans first began exploring the upper Ohio Valley as early as the seventeenth century, and it was not long before both the French and the English held claims over the land west of the Appalachian Mountains. While both countries were involved in trading activities, the English also wanted to possess the land for agricultural uses, whereas the French focused primarily on trading, missionary, and military activities. Through their trading and missionary work, the French were able to establish relationships with the Native Americans, something that the English lacked (Bausman 1904: 37). The French and English began denying each other access to these lands, and consequently, the French and Indian War ensued.

The English victory in 1759 led many settlers to believe the lands west of the Alleghenies would open for settlement. However, Native Americans still occupied much of this land and were not willing to give it up. Therefore, early settlement was slow due to the constant threat of Indian conflict. In an attempt to further western settlement, U.S. General Anthony Wayne led an attack on the Native Americans of the Ohio Valley at the Battle of Fallen Timbers in 1794. The U.S. forces emerged victorious. The defeat of the Native Americans led to the signing of the Treaty of Greenville in 1795, which officially opened the western land to settlement.

Once this land was finally accessible, settlement increased dramatically. Residents in the quickly growing Pittsburgh area tired of having to travel to the Westmoreland and Washington County seats to conduct government affairs, thus prompting the Pennsylvania legislature to establish a new county. As such, Allegheny County was formed on September 24, 1788 out of Westmoreland and Washington counties. Due to its optimal location, Pittsburgh became the county seat in 1791 (Miller et al. 2000: 19). The first portion of Beaver County to be settled by Europeans was the area that lies south of the Ohio River (Bausman 1904: 168). One of the county's earliest settlers was Levi Dungan. He arrived with his family in 1772 and settled along Raccoon Creek (Bausman 1904: 152). On March 12, 1800, Beaver County was formed out of Allegheny and Washington counties and was named after the Beaver River. The county's size was reduced on March 20, 1849, when a part of its land was taken to form Lawrence County (Bausman 1904: 1).

Southwestern Pennsylvania is marked with numerous streams and rivers, which contributed to the success of Allegheny and Beaver counties in various ways. Land in the river valleys was fertile, and agriculture became a driving force of the economy. In the early-to-mid nineteenth century, corn and wheat were the principal agricultural crops of the area. However, barley, oats, rye, and corn also became significant products (Bausman 1904: 279). Neville Island became known for its agricultural produce. In addition, animal husbandry was a key agricultural interest, as both counties had lucrative cattle and wool industries. Farmers found a large wool market in the woolen mills near Pittsburgh (Miller et al. 2000: 22).

Manufacturing and industry along the waterways were pivotal, even early in the region's history. Early Beaver County industries included glass, pottery, and boat making. Multiple boatyards were located at the mouth of the Beaver River and produced keel, cotton boats, flatboats, and steamboats. Mills lined the waterways that flowed through Beaver County. These mills varied in type and included saw mills, paper mills, linseed oil mills, and woolen mills (Bausman 1904: 292, 296-297). Like Beaver County, important industries in Allegheny County included glass blowing and boat building. Additionally, Allegheny County was well known for its nail and wire manufacturing, iron smelting, tanning, and tool making (Fleming 1922:470-472).

Natural resources also proved profitable. The area was recognized for its sandstone, limestone, and fire clay. Coal was also prevalent. Cannel coal was particularly common in Beaver County and gained popularity due to its clean burning qualities. Allegheny County boasted abundant coal resources, primarily mined by six coal companies: Joseph Walton & Co., J.C. Risher & Co., the William H. Brown Company, O'Neil & Co., Redman & Fawcett, and George Lysle & Sons (Miller et al. 2000: 28). An oil boom began in Pennsylvania in 1859, and Allegheny and Beaver counties were among the counties that profited accordingly. Between 1859 and 1884, over 38,000 wells were in existence throughout western Pennsylvania. The first oil well in Beaver County was at Smith's Ferry, and another significant well was near Ohioview. These wells were among the most productive in the county (Bausman 1904: 287). By 1889, Beaver County was producing 600,000 to 1,125,000 barrels of oil annually (Taylor and Taylor 1997). In the 1880s, natural gas was tapped in Allegheny County. George Westinghouse, Jr. established the Philadelphia Company in 1884 and by 1885 was piping gas into Pittsburgh. Within three years, the Philadelphia Company had 600 miles of pipeline coursing through the county (Miller et al. 2000: 27).

Numerous county and state roads were constructed during the beginning of the nineteenth century. Two east-west thoroughfares were opened in 1818: the Pennsylvania Road and the National Road. The Pennsylvania Road, now Route 30, stretches from Pittsburgh to Philadelphia. Currently Route 40, the National Road extended from Wheeling, West Virginia, through Pennsylvania, to Cumberland, Maryland (Miller et al. 2000: 21). Various railroads established lines through Allegheny and Beaver counties. In 1852, the Pennsylvania Railroad opened a line connecting Pittsburgh and Harrisburg, and thus finally linking Philadelphia and Pittsburgh by rail (Treese 2003: 221). The Pittsburgh and Lake Erie Railroad was chartered in 1875 and stretched from Pittsburgh, Pennsylvania, to Haselton, Ohio. This line was instrumental in transporting coal and coke to western Pennsylvania steel mills. Other significant railroads constructed in southwestern Pennsylvania included the Pittsburgh, Youngstown, and Ashtabula Railroad, the Cleveland and Pittsburgh Railroad, and the Ohio and Pennsylvania Railroad (Bausman 1904: 238, 259, 265).

With the success of railroads, river transportation became endangered. As a result, efforts to improve navigation along the region's rivers increased. The first lock and dam constructed on the Ohio River, the Davis Island Lock and Dam, was completed in 1885. Attention then turned to improving the Allegheny and Monongahela Rivers and in 1893, the Corps of Engineers opened a permanent Pittsburgh office. The system of locks and dams constructed along the Ohio, Monongahela, and Allegheny rivers during the late-nineteenth and early-twentieth centuries ensured that the rivers would remain navigable year-round and permitted inexpensive water travel. This in turn bolstered the rapidly growing industries of the southwestern Pennsylvania region (USACE 2009).

The steel industry came to Allegheny and Beaver counties during the late-nineteenth century, after the development of the Bessemer process. Steel mills were erected in Beaver County at Midland by the Midland Steel Company, at Ambridge by American Bridge Company, and at Aliquippa by Jones & Laughlin (Beaver County Industrial Museum 2007). Entire towns were established around steel mills in Allegheny County. These steel towns included Homestead, Neville Island, Braddock, and Etna, among others (Miller et al. 2000:28). Such industry giants as the Carnegie Steel Corporation and the U.S. Steel Corporation were headquartered in Allegheny County.

Southwestern Pennsylvania emerged as an industrial and manufacturing leader on a worldwide scale. It continued its dominance through the first half of the twentieth century, due largely to the increased demands associated with World War I and II. By 1956, Allegheny County had 1,640 manufacturing plants in operation. Approximately 80,000 workers were employed by the steel industry, creating revenue of over two billion dollars. Food production and electrical machinery manufacturing were the second and third largest industries in Allegheny County. However, even combined, the two only employed approximately 45,000 people and generated a return of under \$800 million, nowhere close to competing with the titanic steel industry (Miller et al. 2000: 31).

However, the 1970s saw a decline in manufacturing and the 1980s brought a nationwide collapse of the steel industry. Over 400 steel mills closed, and more than 200,000 steel workers lost their jobs. Specifically, in Beaver County, 20,000 steel workers became unemployed and five steel mills were shut down, including Crucible, LTV, Babcock and Wilson Company,

American Bridge, and Armco (Beaver County Industrial Museum 2007). Within the past two decades, a shift in the economic base of southwestern Pennsylvania has occurred. The economy is no longer centered on manufacturing and industry, but is now focused on education, health care, technology, and professional services (Miller et al. 2000: 31). These growing industries and the Greater Pittsburgh Airport, helped to compensate for the industrial closings.



## 4.0 Background Research and Site Potential

Background research was undertaken to (1) identify known cultural resources in the immediate environs of the study areas and (2) to provide data that indicates areas that may be sensitive for cultural resources, prior to fieldwork. Each study area is discussed separately below.

### 4.1 Emsworth Primary

#### 4.1.1 Archaeology

PASS files data indicate that no previously recorded archaeological sites occur within the study area and two recorded archaeological sites are located within a one-mile radius of the study area (Figure 7; Table 2). Neither of these sites is located on Neville Island. Both sites were recorded by local informants and not visited by professional archaeologists. According to the PASS form, Site 36AL294 was 100 percent destroyed. These sites do not provide information that would help assess the potential to find previously unrecorded sites within the island setting of this study area.

**Table 2. Archaeological Sites within 1 Mile (1.6 km) of Emsworth Primary and Secondary Study Areas**

Site Number	Study Areas	Site Type	Topographic Setting	Archaeological Components
36AL294	Emsworth Primary and Secondary	Open Habitation	Stream Bench	Undated Prehistoric
36AL299	Emsworth Primary and Secondary	Open Habitation	Terrace	Undated Prehistoric

#### 4.1.2 Architecture

Review of data on file at PHMC-BHP and CRGIS on-line indicated that there are no previously recorded architectural or historical resources located within, or adjacent to, this study area (Figure 8).

### 4.2 Emsworth Secondary

#### 4.2.1 Archaeology

PASS files data indicate that no previously recorded archaeological sites occur within the study area and two recorded archaeological sites within one-mile radius of the study area (see Figure 7; see Table 2). These sites, discussed under the Emsworth Primary section above, were not useful in assessing the archaeological potential in this study area.

#### 4.2.2 Architecture

There is one previously recorded resource, Emsworth Locks and Dams (008715), located adjacent to the Emsworth Secondary study area (see Figure 8; Table 3). Constructed by 1922 and consisting of two dams, two locks, and three operations buildings, the Emsworth Locks and Dams has been determined eligible for NRHP listing.

**Figure 7. Previously Recorded Archaeological Sites within One Mile of Emsworth Study Areas**



**Figure 8. Previously Recorded Architectural Resources Adjacent to Emsworth Study Areas**

**Table 3. Previously Surveyed Architectural and Historical Resources—  
Emsworth Secondary Study Area**

Key Number	Study Area	Name	Historical Function	Construction Date	NRHP Status
008715	Emsworth Secondary	Emsworth Locks & Dams	Locks & Dams	1922	Eligible

### 4.3 Dashields Primary

#### 4.3.1 Archaeology

PASS files data indicate that no previously recorded archaeological sites occur within the study area; however, there are seven recorded archaeological sites (37AL7, 36AL61, 36AL210, 36AL319, 36AL386, 36AL387, and 36AL480) within a one-mile radius of the study area (Figure 9; Table 4). Site 36AL7, a 3.5-acre Late Woodland occupation, was situated on the north bank of the Ohio River less than 0.25 miles north of Dashields Primary study area; the site has been destroyed by industrial development (Davis 2007:70).

**Table 4. Archaeological Sites within 1 Mile (1.6 km) of Dashields Primary and Secondary Study Areas**

Site Number	Study Areas	Site Type	Topographic Setting	Archaeological Components
36AL7	Dashields Primary and Secondary	Village	Terrace	Woodland (W), Late Woodland (LW)
36AL61	Dashields Primary	Open Habitation	Ridgetop	Undated Prehistoric
36AL 210	Dashields Primary and Secondary	Open Habitation	Terrace	Undated Prehistoric
36AL319	Dashields Primary and Secondary	Open Habitation	Rise in Floodplain	Undated Prehistoric
36AL386	Dashields Primary and Secondary	Open Habitation	Terrace	Late Archaic (LA), W, Early Woodland (EW)
36AL387	Dashields Primary and Secondary	Open Habitation (and possible quarry)	Terrace	LA, W, EW, LW
36AL480	Dashields Primary and Secondary	Open Habitation, Brick Works	Terrace	Middle Archaic (MA), LA, Transitional Archaic (TA), EW, Middle Woodland (MW), Historic

**Figure 9. Previously Recorded Archaeological Sites within One Mile of Dashields Study Areas**

Site 36AL210 was subjected to Phase I and Phase II levels of investigation, which produced 4,131 prehistoric lithic and ceramic artifacts and 317 historic artifacts from this multicomponent site (Davis 2007:57). A possible prehistoric feature and two historic-era postholes were identified during the investigations. In general, the site lacked integrity and was not deemed eligible for listing on the National Register of Historic Places (Davis 2007:70).

Sites 36AL386 and 36AL387 were identified and tested within the Leetsdale Industrial Complex. Site 36AL386 is a multicomponent site dating from Early Woodland through the Late Prehistoric period. Site 36AL387 dates to a similar time period and both “were likely part of a diachronic series of settlements” but recorded as open habitation sites (Davis 1998:85). Both of these prehistoric habitation sites lack integrity and were recommended as not eligible for listing on the National Register of Historic Places.

Site 36AL480 is located on the T-1 to T-3 terraces of the Ohio River within the Leetsdale Industrial Complex and was investigated for the U.S. Army Corps of Engineers–Pittsburgh District as part of a concrete-casting facility and launch basin. This stratified site has Middle Archaic through Early Woodland components capped by a historic industrial brickworks component (ca. 1870-1910). This site had intact features indicating that this part of the industrial park had less intensive ground-disturbing activities in the past.

#### 4.3.2 Architecture

Three previously identified architectural and historical resources are located adjacent to the Dashields Primary study area: Edgeworth Historic District (100731), Riter-Conley Manufacturing Company/Bethlehem Steel Company Building (102240), and Dashields Lock and Dam (117588). The resources are depicted in Figure 10 and summarized in Table 5. Of the three, only the Riter-Conley Manufacturing Company/Bethlehem Steel Company Building has been determined NRHP-eligible. Within the Edgeworth Historic District, 131 resources have been individually documented. Two of those resources are listed on the NRHP: the David Shields House/Newington (001759) and the Nicholas Way House (001785). Two of the resources are recommended eligible for listing: the William H. Singer Estate Outbuildings/Chestnut Hill/Edgehill Manor (010731), and the Edgeworth Bridge (010779).

**Table 5. Previously Surveyed Architectural and Historical Resources—  
Dashields Primary Study Area**

Key Number	Study Area	Name	Historical Function	Construction Date	NRHP Status
100731	Dashields Primary	Edgeworth Historic District	Residential District	1870-1940	Undetermined
102240	Dashields Primary	Riter-Conley Manufacturing Company/Bethlehem Steel Company	Industrial Building	1903	Eligible
117588	Dashields Primary	Dashields Lock & Dam	Lock/Dam	1929	Undetermined

Although CRGIS depicts the boundaries of the Edgeworth Historic District and the Riter-Conley Manufacturing Company/Bethlehem Steel Company Building as falling within this study area, the boundaries are inaccurately defined. The individual PHRS forms for these two resources do not provide boundary descriptions, and a field visit verified that they do not fall within this study area. As such, there are no previously identified resources located within the Dashields Primary study area.

#### **4.4 Dashields Secondary**

##### **4.4.1 Archaeology**

PASS files data indicate that no previously recorded archaeological sites occur within the study area; however, there are six previously recorded archaeological sites (37AL7, 36AL210, 36AL319, 36AL386, 36AL387, and 36AL480) within a one-mile radius of the study area (see Figure 9; see Table 4). These were discussed above in the Dashields Primary section. None of these six previously recorded archaeological sites is located on the same side (southwest side) of the Ohio River as this study area. This may be due to the lack of professional archaeological surveys near the Dashields Secondary study area.

##### **4.4.2 Architecture**

Review of architectural files and information obtained through CRGIS revealed that there are no previously recorded architectural or historical resources located within the Dashields Secondary study area or adjacent to it (Figure 10).

#### **4.5 Montgomery Primary**

##### **4.5.1 Archaeology**

There are 15 previously recorded archaeological sites within a one-mile radius of the Montgomery Primary study area, including Site 36BV131 which covers most of this Primary study area, and Site 36BV55 which covers much of Montgomery Secondary study area (Figure 11; Table 6). Sites 36BV131 and 36BV55 were recorded by a local collector and not visited by professional archaeologists to confirm the information.

The 15 sites in the one-mile study radius are found in floodplain, terrace, hill and ridge top, and slope topographic settings (see Table 6). Eleven of these sites are prehistoric lithic scatters (open habitation) of unknown temporal affiliation. All four remaining sites with an assigned cultural affiliation (36BV9, 36BV266, 36BV269, 36BV305) are located on the opposite side (north side) of the Ohio River. Site 36BV9 is a multicomponent village site (Early Woodland through Late Woodland) that has been heavily disturbed, and possibly destroyed, by industrial-related activities. Site 36BV266 is a multicomponent (Late Archaic, Transitional Archaic, Middle Woodland) open habitation site. Site 36BV269 is a Middle Woodland earthwork, and Site 36BV305 represents a Late Woodland lithic scatter.

**Figure 10. Previously Recorded Architectural Resources Adjacent to Dashiels Study Areas**

**Figure 11. Previously Recorded Archaeological Sites within One Mile of Montgomery Study Areas**

**Table 6. Archaeological Sites within 1 Mile (1.6 km) of Montgomery Primary and Secondary Study Areas**

Site Number	Study Areas	Site Type	Topographic Setting	Archaeological Components
36BV1	Montgomery Primary	Open Habitation with burials	Terrace	Undated Prehistoric
36BV9	Montgomery Primary and Secondary	Open Habitation (Village)	Floodplain	EW, MW, LW
36BV50	Montgomery Secondary	Open Habitation	Terrace	EA, TA, EW
36BV55	Montgomery Primary	Open Habitation	Floodplain	Undated Prehistoric
36BV58	Montgomery Secondary	Open Habitation	Floodplain	Undated Prehistoric
36BV91	Montgomery Primary	Open Habitation	Terrace	Undated Prehistoric
36BV94	Montgomery Secondary	Open Habitation	Floodplain	Undated Prehistoric
36BV95	Montgomery Secondary	Open Habitation	Floodplain	Undated Prehistoric
36BV96	Montgomery Secondary	Open Habitation	Terrace	Archaic
36BV97	Montgomery Primary	Open Habitation	Hilltop	Undated Prehistoric
36BV129	Montgomery Primary and Secondary	Open Habitation	Ridgetop	Undated Prehistoric
36BV131	Montgomery Primary and Secondary	Open Habitation	Terrace	Undated Prehistoric
36BV135	Montgomery Primary and Secondary	Open Habitation	Lower Slopes	Undated Prehistoric
36BV191	Montgomery Secondary	Lithic Reduction	Floodplain	Undated Prehistoric
36BV221	Montgomery Secondary	Open Habitation	Upland Flat	MA, LA
36BV230	Montgomery Secondary	Open Habitation; Historic Artifact Scatter	Floodplain	LA, Historic
36BV231	Montgomery Secondary	Open Habitation	Terrace	Undated Prehistoric
36BV266	Montgomery Primary and Secondary	Open Habitation	Middle slopes	A, LA, TA, W, MW
36BV269	Montgomery Primary and Secondary	Earthwork	Terrace	W, MW
36BV303	Montgomery Primary	Open Habitation Site	Rise in Floodplain	Undated Prehistoric
36BV304	Montgomery Primary	Open Habitation Site	Rise in Floodplain	Undated Prehistoric
36BV305	Montgomery Primary	Open Habitation Site	Rise in Floodplain	LW
36BV306	Montgomery Primary	Open Habitation Site	Floodplain	Undated Prehistoric
36BV354	Montgomery Primary	Open Habitation Site	Terrace	Undated Prehistoric



#### 4.5.2 Architecture

Review of the architectural files at PHMC-BHP offices and information contained in CRGIS revealed that there is one previously recorded historical resource located adjacent to the Montgomery Primary study area: Montgomery L&D (Figure 12). The Montgomery L&D was constructed by 1936 and consists of a gated dam, two locks, and several operation buildings. The NRHP status of this resource remains undetermined.

**Table 7. Previously Surveyed Architectural and Historical Resources—  
Montgomery Primary Study Area**

Key Number	Study Area	Name	Historical Function	Construction Date	NRHP Status
Unassigned	Montgomery Primary	Montgomery Locks and Dam	Locks and Dam	1936	Undetermined

## 4.6 Montgomery Secondary

### 4.6.1 Archaeology

Fifteen previously recorded archaeological sites are within a one-mile radius of the Montgomery Secondary study area, including Site 36BV131, which covers most of Montgomery Primary study area, and Site 36BV55, which covers much of Montgomery Secondary study area (see Figure 11; see Table 6). Both sites 36BV55 and 36BV131 were recorded by amateur collectors and were not visited by professional archaeologists.

These 15 sites are found in floodplain, terrace, hill and ridge top, upland flat, and slope topographic settings (see Table 6). The site type and temporal affiliation of these 15 sites varies. Seven of the previously recorded sites are undated prehistoric open habitation sites (lithic scatters). Site 36BV9 is an Early Woodland through Late Woodland village site. Site 36BV96 has a general Archaic component. Site 36BV50 has Early Archaic, Transitional Archaic, and Early Woodland components. Based on informant information, Site 36BV221 has both Middle Archaic and Late Archaic components. Site 36BV266 has Archaic, Late Archaic, Transitional Archaic, Woodland, and Middle Woodland components. Site 36BV269 is listed as an earthwork with a Woodland, possibly a Middle Woodland, temporal affiliation. Informant information indicated that Site 36BV191 is a possible lithic reduction site. Site 36BV230 is recorded as having both a Late Archaic lithic scatter and a historic artifact scatter.

### 4.6.2 Architecture

Based on information gathered through CRGIS and architectural files at PHMC-BHP, no previously recorded architectural or historical resources occur within the Montgomery Secondary study area, or adjacent to it (see Figure 12).

**Figure 12. Previously Recorded Architectural Resources Adjacent to Montgomery Study Areas**

## **4.7 Summary of Previously Recorded Resources**

### **4.7.1 Archaeological Sites**

Thirty-three sites are recorded within a one-mile radius of the six study areas. Most of these sites were recorded by collectors and never verified by archaeologists. As reflected in Tables 7, 9, and 11, these sites are found in a variety of site settings including terrace ( $n=14$ ), floodplain ( $n=12$ ), hill or ridge tops ( $n=3$ ), slopes ( $n=2$ ), upland flat ( $n=1$ ) and bench ( $n=1$ ). Based on this sample, terrace and floodplain settings along the Ohio River and its tributaries were more intensively utilized than other settings.

Site types found near the study areas are limited. Site types include a possible quarry (36AL387), a lithic reduction workstation (36BV191), village (36AL7 and 36BV9), earthworks (36BV269), and an open habitation site with burials (36BV1). There are also two sites with both prehistoric and historic components (36AL480 and 36BV230). The remaining sites are lithic scatters (open habitation sites). Based on the sample it appears that the most common type of sites in these areas are undated open habitation sites.

Site components provide data to understand better the use of the project vicinity over time. These 33 sites include 21 sites with undated prehistoric components. The remaining 12 sites account for 33 dated components. Of the prehistoric sites, there were six sites with Late Archaic components and five sites with Early Woodland components. The other components are less frequently represented and include Archaic ( $n=2$ ), Early Archaic ( $n=1$ ), Middle Archaic ( $n=2$ ), Transitional Archaic ( $n=3$ ), Woodland ( $n=4$ ), Middle Woodland ( $n=4$ ), and Late Woodland ( $n=4$ ). Based on this site sample, it would appear that the region was more intensively utilized during the Late Archaic through Late Woodland periods.

### **4.7.2 Architectural Resources**

Five previously identified architectural and historical resources are located adjacent to the study areas. These resources consist of three separate locks and dams facilities, a historic district, and an industrial building. Two resources, the Emsworth Locks and Dams (008715) and the Riter-Conley Manufacturing Company/Bethlehem Steel Company Building (102240), have been determined NRHP-eligible. None of the previously recorded architectural or historical resources occurs within the APE of the study areas.

## **4.8 Previous Cultural Resource Studies**

To gain a more detailed insight into site types common in the project vicinity, research reports for five previous archaeological surveys within a 1-mile radius of the study areas were reviewed at the BHP, including two sanitary sewage line projects (Cosgrove 1993; Davis 2007), one concrete casting facility (Davis 2000), one bridge and roadway right-of-way survey (Davis and Wilks 2000), and one barge facility study (Davis 1998).

Christine Davis Consultants, Inc. (CDC) conducted a Phase I survey for expansion of a sewage treatment plant in Edgeworth and Leetsdale boroughs in 2007 (Davis 2007). This study included a Phase I study of two 5-ft wide sewage line segments and a 1,111 sq m (11,960 sq ft) wastewater treatment expansion location. One of the two segments (Part I) ran along the Norfolk Southern Railroad Right-of-Way (ROW) just north of the Dashields Primary area. This

segment, measuring 4,550 ft long, connected the Edgeworth Lane Pumping Station (Edgeworth Borough) with the Little Sewickley Creek Pumping Station (Leetsdale Borough). The second segment (Part II) ran from Leetsdale Sewage Treatment Plant approximately 2,200 ft before terminating in West Alley. Due to the disturbed nature of these two segments, no subsurface testing was undertaken. One previously identified site (36AL210) was located within the wastewater treatment expansion location (Part III). Phase II investigations at this site documented a possible prehistoric feature and two historic-era postholes. The study concluded that this site lacked integrity and was not eligible for listing on the National Register of Historic Places.

In 1998, CDC conducted a Phase I/II study for the Leetsdale Barge Loading/Unloading Facility (Davis 1998). This barge transportation facility is located in an industrial area on a terrace of the Ohio River. Two prehistoric sites were identified (36AL386 and 36AL387) on the second and third terraces of the Ohio River. Phase II testing indicated that both sites were sporadically occupied in the Late Archaic and from the Early Woodland through Late Prehistoric periods. Features were identified at both sites but the study concluded that both sites were heavily disturbed and lacked integrity.

In 2000, CDC conducted a Phase I study for the Leetsdale Bridge and accompanying roadway improvements (Davis and Wilks 2000). The study area for the archaeological investigation encompassed approximately six acres in Allegheny and Beaver counties, centered in Leetsdale Borough. This study did not identify any archaeological sites.

In 1992, KellyLynn Cosgrove conducted a Phase I survey for a proposed sanitary sewer line in Industry Borough, Beaver County. The sewer line covered 15,210 linear meters (49,000 linear feet) of which only 1500 m (4920 ft) were considered to have moderate to high potential for archaeological sites. Most of the sewer lines fell within modern housing developments. Locations with moderate to high potential for archaeological sites formed four discontinuous areas or loci. Four prehistoric archaeological sites were identified in Locus 2 (36BV303-36BV306). All four sites were located at the base of a steep slope and additional testing determined that all four sites lacked integrity. Site 36Bv305 testing yielded a triangular Late Woodland biface. No diagnostic artifacts were recovered from the other three prehistoric sites.

CDC also conducted Phase I testing for the Leetsdale Concrete Casting Facility located on the T-1 to T-3 terraces of the Ohio River in Leetsdale Industrial Park (Davis 2000). This study documented a large stratified site (36AL480) on these terraces with an overlying historic era industrial brickworks component. Types of diagnostic artifacts recovered from the Phase I investigation include Brewerton Side Notched, Kiski Notched, Late Archaic Side Notched, LeCroy Bifurcated Stem, Memom/Trimble side notched (Weed 2004: 3-34). Subsequent excavations were undertaken by several firms for the US Army Corps of Engineers–Pittsburgh District. Excavations revealed numerous features and diagnostic artifacts within stratified occupations.

#### **4.9 Historic Map Research**

Twentieth-century historic USGS topographic maps and available aerial photographs within the Natural Resource Assessment report for this project were examined (Aerostar 2009: Appendix E). In addition, a historic county atlas map was examined for each study area for

information on their development in the late-nineteenth century. The map resources were used to: (1) assist in evaluating the potential of the study areas to contain structures and historic sites, (2) examine development of the areas over time, and (3) provide insights into past land use activities that may affect soil conditions. This report summarizes the historic and current land use information presented in the Natural Resource Assessment report, which is a separate report under this work order.

#### 4.9.1 Emsworth Primary

The map review for Emsworth Primary study area included nine aerial photographs (dating from 1939-2006), six topographic maps (from 1908 to 1993) (see Aerostar 2009) and one historical atlas map (Hopkins 1876). In 1876, the Emsworth Primary study area was part of undeveloped land (agricultural field) located between a road traversing northwest to southeast across Neville Island and the Ohio River (Figure 13). The island was mainly agricultural farmlands in the late 1800s. The island's economy began to change by 1900 as industry moved on to the island. The government acquired 130 acres for an ordnance plant in 1918, and by 1921, most of the farms were gone and the island was dominated by industrial operations (Tatone et al. 2008:17).

The USGS map shows no development in Emsworth Primary study area in 1906, most likely indicating that it was still agricultural lands. Sometime between 1906 and 1920, the land usage changed. This area was used as part of a refinery complex in the 1920s-1950s (Aerostar 2009:7). The Emsworth L&D were under construction when the Flood of 1936 hit, washing away part of the island and construction machinery used for dam construction. According to the Natural Resource Assessment study report, Neville Island was severely eroded by the 1936 flood (Aerostar 2009:7). This part of the island was backfilled with river dredge material; the riverbank was then capped with stone.

Petroleum bulk-storage tanks are shown in the 1939 aerial photograph of the Emsworth Primary study area indicating the rapid recovery of the local industries after the Flood of 1936. The study area housed above-ground storage tanks at least as late as 1967. The 1967 aerial photograph shows small structures across much of the area but by 1969 only one structure, located on the northeast end near the river, remained and was present at least until 2005. The western part of this area was cleared during the 1940s and remained so until the 1990s. Chevron acquired the site in the 1990s and used the land to store petroleum contamination and hazardous waste (Aerostar 2009:7). More of the area was cleared in the early 2000s.

#### 4.9.2 Emsworth Secondary

The map review for Emsworth Secondary study area included nine aerial photographs (dating from 1939-2006), six topographic maps (from 1908 to 1993) (see Aerostar 2009) and one historical atlas map (Hopkins 1876). The Emsworth Secondary study area was part of an undeveloped area (likely an agricultural field) in 1876, located between a road traversing Neville Island, and the Ohio River (see Figure 13).

USGS quadrangle maps and aerial photographs from the Natural Resource Assessment study report were reviewed to examine development of this area during the twentieth century. The railroad, built before 1939, runs along the southern edge of this area.

**Figure 13. Emsworth Primary and Secondary Areas in 1876**

Aerial photographs indicate agricultural land until sometime after 1949. By 1953, USGS topographic maps depict two clusters of structures within the study area. By 1967, most of the buildings were removed and the area reverted to fields and woodlots. Between 1967 and 1973, there was new industrial development in this area. Part of this area was located within Exxon's Bulk Storage facility from ca. 1979 to at least 2002.

#### 4.9.3 Dashields Primary

The map review for Dashields Primary study area included 11 aerial photographs (dating from 1938-2006), six topographic maps (from 1908 to 1990) (see Aerostar 2009), and one historical atlas map (Hopkins 1876). Examination of the Hopkins (1876) atlas map and the USGS 15' Sewickley quadrangle map (1908) indicates that there were no structures within the parcels that make up the Dashields Primary area (Figures 14 and 15).

The aerial photograph indicates that, in 1938, both parcels (large triangular east parcel and the smaller west parcel) were cleared of vegetation. At this time, a road traversed the middle of the east parcel, and another road ran along the riverbank. Trees lined Sewickley Creek. It appeared that materials were stockpiled in this area in the late 1930s. The site became partially re-vegetated during the 1940s. Portions of the area were cleared in the 1970s. Over time, scrub growth and woodlots became established, although the presence of access roads indicates that activity remained. There was no vegetation in the eastern tip of the study area until sometime after 1993, but trees were growing in other parts of this parcel. The western parcel was cleared for industrial use ca. 1990. Previously established wooded sections near Sewickley Creek and the Ohio River were left to grow and mature.

#### 4.9.4 Dashields Secondary

The map review for Dashields Secondary study area included 12 aerial photographs (dating from 1938-2006), six topographic maps (from 1908 to 1990) (see Aerostar 2009) and one historical atlas map (Hopkins 1876). At Dashields Secondary study area, there were two structures present in 1876 and in 1908 (see Figure 15; Figure 16). A review of twentieth-century aerial photographs and USGS quadrangle maps indicates that two additional structures (locktenders' houses) were constructed in the west end by 1939. One of the earlier structures was removed between 1939 and 1949. In 1939, the eastern portion of the study area and the west side of the access road were either wooded or covered in scrub growth, while the area around the houses was lawn. By 1960, the yard area diminished in size and trees became established on the eastern half of this area. The remaining houses were removed before 1975, and a wastewater treatment plant was constructed on the east end. The central and eastern portion remained wooded until sometime between 1985 and 1993. By 2005, there was a baseball field, parking lot, and picnic pavilion on the west side. There were three small structures and the sewage treatment plant on the west end. The treatment plant was removed by 2006, and only the Crescent Township maintenance buildings remained.

The District provided some information on this area including a detailed 1933 drawing of two locktenders' houses built within this study area (Figure 17). These two houses were exsessed to the Township in 1973 and demolished shortly thereafter.

**Figure 14. Dashiels Primary Area in 1876**



**Figure 15. Dashiels Primary and Secondary Area in 1908**

**Figure 16. Dashiels Secondary Area in 1876**

**Figure 17. Dashiels Lock, Locktenders' Houses in 1933**

#### 4.9.5 Montgomery Primary

The map review for Montgomery Primary study area included 10 aerial photographs (dating from 1939-2006), four topographic maps (from 1908 to 1979) (see Aerostar 2009), four photographs of Montgomery Dam construction provided by the District, one map of the Ohio River and vicinity (1877), and one historical atlas map (Caldwell 1876). Caldwell's (1876) atlas map indicates a possible structure in the study area vicinity (Figure 18, top). A clear view of the project area is depicted on an 1877 map indicating two structures in Montgomery Primary: one just west of Squirrel Run (Allen House) and one in the central part of the project area (R. Kenyon House) (Figure 18, bottom). Both structures are depicted on the 1904 USGS topographic map (Figure 19).

Montgomery Locks and Dam, located immediately north of Montgomery Primary study area, was completed in 1936. Construction of this navigation facility had a major impact on the Montgomery Primary study area. The mouth and lower reaches of Squirrel Run were moved to the west to channel this stream west of the lock wall. This likely resulted in the demolition of the Allen house if it was not already gone.

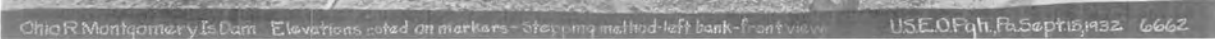
The Kenyon house depicted on the 1876 and 1877 maps (see Figure 18) was located on a terrace almost directly south of the dam. The District provided four scanned photographs that illustrate Montgomery Primary study area during dam construction activities. At that time, the riverbank was denuded of vegetation and stepped back (Photograph 1). Four construction-related buildings were built on the terrace and stairs led from the terrace down to the river construction area (Photograph 2). These work structures were located east of the R. Kenyon House depicted on the 1877 map. This house was referred to as the Emerick House in the 1930s (Photograph 3) and referred to in the remainder of this report as the Kenyon-Emerick House.

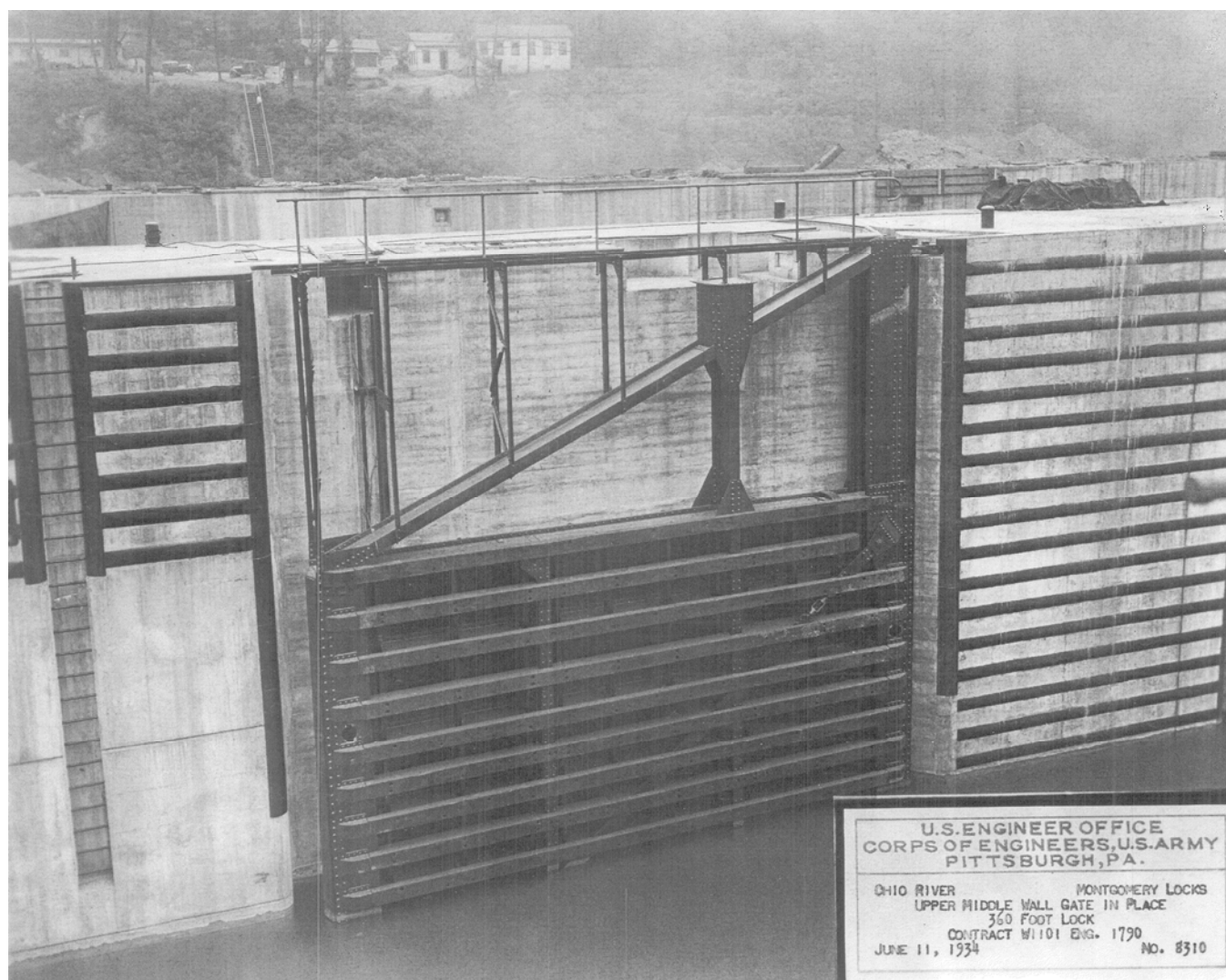
A close-up photograph of the Kenyon-Emerick House illustrates a two-story stone house that was one room deep and two rooms wide with a central door and a gable end chimney (Photograph 4). On the north (river) side of the house, there was a stone foundation and collapsed roof for a two-story addition but the addition had been removed. There are six broken windowpanes on the east side and at least one broken windowpane on the north side. The condition of the house at the time of the photograph (November 4, 1932) suggests that it was abandon at that time.

The area west of Squirrel Run has remained forested from 1939 to present. The area east of Squirrel Run was generally cleared of trees. A driveway enters central area from the south, just west of a garage currently standing on the property, and ran northwest past a structure depicted in the 1939 aerial photograph and headed towards the Kenyon-Emerick House before looping back to the entrance in the south. This driveway would have run along the south side of the temporary buildings created for dam construction activities. The railroad line was built sometime between 1939 and 1952 in the general location of a former road that ran along the river terrace from at least 1876-1939. The 1967 and 2006 aerial photographs indicate that the previously cleared areas were reverting to woods and scrub growth.

**Figure 18. Montgomery Primary and Secondary Areas in 1876 (top) and 1877 (bottom)**

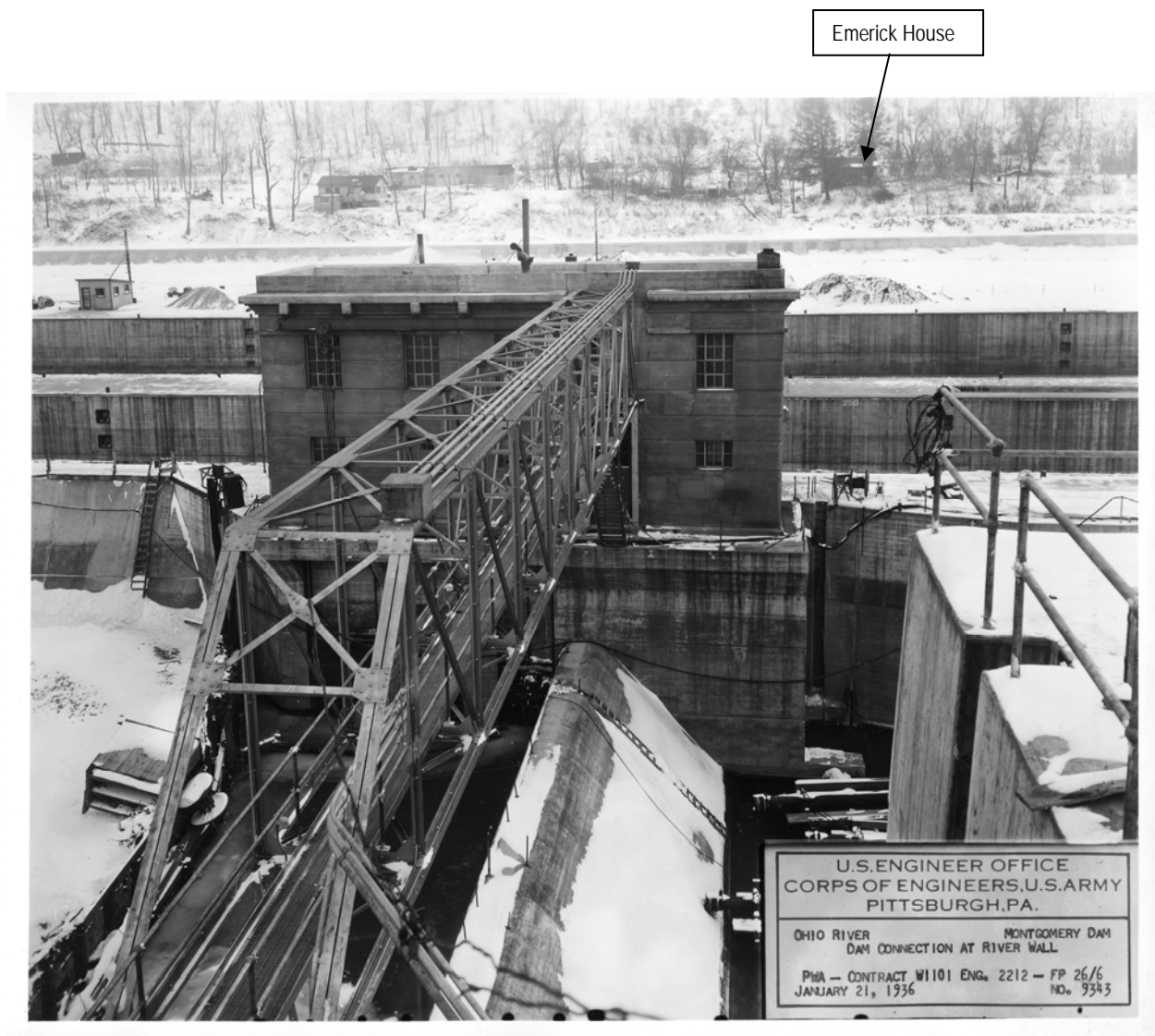
**Figure 19. Montgomery Primary and Secondary Areas in 1904**





***Photograph 2. Overview of Montgomery Dam Construction on June 11, 1934. View to South. Note construction buildings in left background. (Photograph Courtesy of USACE, Pittsburgh District.)***





*Photograph 3. Overview of Montgomery Dam Construction on January 21, 1936. View to South. Note Emerick House in right background. (Photograph Courtesy of USACE, Pittsburgh District.)*



***Photograph 4. Close-Up of Emerick House on November 4, 1932. View to Southwest.  
(Photograph Courtesy of USACE, Pittsburgh District.)***

#### 4.9.6 Montgomery Secondary

The map review for Montgomery Secondary study area included review of 11 aerial photographs (dating from 1939-2006), four topographic maps (from 1904 to 1979) (see Aerostar 2009) and one historical atlas map (Caldwell 1876). By 1876, a house was located in the northwestern corner of the site with a driveway entering this location from the south. This house was depicted in the 1904 quadrangle map and the 1939 aerial photograph. The aerial photographs illustrate that by 1952, the house was no longer present and the majority of the study area was commercially and industrially developed. Aerial photographs and topographic maps reveal extensive excavations and shoreline changes in the 1950s through the 1970s.

A review of the western 3.7-acre site aerial photograph indicates that in 1939, the site had been cleared and a road entered the site from the south (where the railroad is today). The site remained in the same condition (unaltered, and no development) until the cleared area became re-vegetated by the time of the 1967 aerial. The 2006 aerial shows the site remained undisturbed and is completely re-forested.

Based on the review of historical records and interviews, the Montgomery Secondary site was primarily undeveloped land with a road from at least 1904 to at least 1939, commercially/industrially developed from at least 1952 to at least 1967, developed with an excavation from at least 1969 to at least 1979, and has been developed with a synthetic gypsum plant since at least 1977.

#### 4.10 Map Research Summary

Industrial development over the years has severely impacted all or parts of five of the six study areas. All or nearly all of Emsworth Primary and Emsworth Secondary study areas included extensive industrial development for petroleum related activities. There was also evidence of large-scale earthmoving activities on the west end of Emsworth Secondary. Spoil piles were also observed in the Dashields Primary western parcel and the western half of the Dashields Primary large eastern parcel. The east side of Dashields Secondary was disturbed by Crescent Township's sewage facilities and, more recently, the Township's maintenance buildings. The majority of Montgomery Secondary has been subjected to earthmoving activities and large open storage/spoil piles are visible on more recent aerial photographs.

There is a moderate to high potential to encounter intact soils in several locations including nearly all of Montgomery Primary study area, which has remained relatively undeveloped (except for railroad and dam construction activities). The west half of Dashields Secondary did not appear to be disturbed by industrial activity; however, this area was transformed from residential houses to a neighborhood park. The aerial photographs were also not useful in assessing the amount of ground disturbing activities in the eastern part (east side of Sewickley Creek) of Dashields Primary. This area had spoil piles present from circa 1938-1949.

#### 4.11 Summary of Background Research

Background research was very informative regarding archaeological site potential. Previous archaeological studies, recorded site file data, and map research indicate:

- One previously recorded (amateur reported) archaeological site covers most of Montgomery Primary study area
- One previously recorded (amateur reported) archaeological site covers most of Montgomery Secondary study area
- A moderate to high potential for prehistoric archaeological sites exists in all three study areas
- A high potential for historic-era archaeological sites exists at Dashields Secondary and Montgomery Primary study areas
- Modern development has disturbed large areas along the Ohio River
- Industrial development has significantly impacted Emsworth Primary, Emsworth Secondary, the western tract of Dashields Primary, the western half of Dashields Secondary, and Montgomery Secondary. There is also an unknown amount of industrial disturbance in the eastern tract of Dashields Primary.

In conclusion, there appears to be a moderate to high potential for prehistoric sites in Dashields Primary, the eastern half of Dashields Secondary, and Montgomery Primary study areas, with a previously recorded prehistoric site falling within Montgomery Primary study area. There is also a moderate to high potential for historic sites within Dashields Secondary and Montgomery Primary areas.



## **5.0 Methodology**

### **5.1 Background Research**

The methodology for the cultural resources assessment survey included background research to: (1) identify previously recorded resources within and near the study areas; (2) develop an environmental and cultural context to aid in evaluation of identified resources; and (3) identify areas of no, low, moderate, and high potential for cultural resources. Historic research was conducted at the Pennsylvania Historical and Museum Commission (PHMC), Bureau for Historic Preservation (BHP) office in Harrisburg and the state's online Cultural Resources Geographic Information System (CRGIS) for cultural resources information, including reports on all previously surveyed areas as well as NRHP-listed resources located within, and adjacent to, the APE. Other sources consulted included published histories and architectural histories of Allegheny and Beaver counties, census data, newspapers, and historic maps of the study area. Additional research was conducted at the Library & Archives of the Historical Society of Western Pennsylvania (HSWP) at the Senator John Heinz History Center in Pittsburgh.

Pennsylvania Archaeological Site Survey (PASS) data were reviewed for prehistoric and historic sites within one mile of the six study areas (Emsworth, Primary, Emsworth, Secondary, Dashields Primary, Dashields Secondary, Montgomery Primary, and Montgomery Secondary). Architectural and historic resources within or immediately adjacent to all six study areas were also reviewed.

### **5.2 Archaeological Survey**

Each area was subjected to a pedestrian reconnaissance, at which time existing conditions were noted and photographed. The results of the pedestrian reconnaissance combined with the background research were useful in targeting the archaeological and architectural field survey work. The archaeological survey included background research, pedestrian reconnaissance, photo-documentation, excavation of shovel probes (SPs), geomorphologic trench soundings, laboratory processing and analysis, and report preparation. The field study was conducted between July 13-27 and November 24-December 1, 2009.

On July 13, 2009, the project principal investigator conducted a ground reconnaissance of all study area to groundtruth preliminary assessments of archaeological potential based on background research. This was followed by limited subsurface testing consisting of systematic shovel testing at 15-meter (50-foot) intervals to identify sites, when possible. Shovel probes (SPs) measured 50 cm (1.5 ft) in diameter and were excavated by natural soil horizons, continuing at least 10 cm into culturally sterile subsoil. Excavated soils were screened through 6-mm (0.25-inch) hardware mesh for systematic artifact recovery. Results of excavations were recorded on standardized field forms (including profiles of SPs, provenience data, depth of soil horizons, soil descriptions, and a list of any recovered artifacts). SPs were backfilled after excavations. SP locations were recorded on study area design maps and, when foliage permitted, recorded with a GPS unit capable of submeter accuracy. Overview photographs of study areas and archaeological sites were taken for each area.

Three exploratory geomorphology trenches were required under the SOW in the Dashields Primary Study area. These geomorphic trenches were to permit the geomorphologist to assess the landform for prehistoric archaeological site potential and evaluate the potential for deeply buried archaeological resources. A Registered Professional Engineer (RPE) designed the trench sloping or benching system for geomorphology backhoe trenches. Information on the RPE-approved trench design was available on-site. In addition, Allegheny County required that a copy of the Erosion and Sedimentation Control (E&SC) plan be available on site during fieldwork. It was necessary to notify the Pennsylvania Fish and Boat Commission regarding our excavation plans. This resulted in a Pennsylvania Natural Diversity Inventory (PNDI) request and the E&SC plan was designed to take into account the PNDI results.

Geomorphology mechanical trenches were not to exceed 30 m in length (with a ramp on each end for ingress/egress) and 5.4 m in depth. The geomorphologist was to document (photographs, notes, profile maps) the stratigraphic profile of the A and B type soils (as defined in EM 385-1-1) on at least one end of each trench after the air quality was monitored. Once the trench excavation encountered unstable (Type C) soils, the remaining depth of the trench was excavated with vertical sidewalls down to Pleistocene soils, the water table, or maximum reach of the mechanical equipment (not to exceed 5.4 m in depth) and documented with notes and photographs.

Trench excavations were attempted in six locations using a Komatsu Model PC 160LC track excavator. The excavator could not penetrate through the thick slag fill deposits covering this study area. Access to this study area required vehicles to enter through a railroad underpass. The low height of the underpass precluded bringing a larger excavator into the study area. As a result, trench excavations were halted at the end of the first day (July 14, 2009).

GAI transported cultural materials from identified sites to its laboratory in Homestead, Pennsylvania, for cleaning, processing, and analysis. Once artifacts arrived, laboratory staff checked the field specimen (FS) log against labeled artifact bags for consistency and accuracy. Technicians then temporarily placed the artifact bags in numerical order according to FS number to facilitate tracking during the processing, analysis, and curation stages. Subsequently, cultural materials were cleaned and placed on artifact-drying racks. Lab staff then re-bagged the clean, dry artifacts into new, 4-mil polyethylene bags. Lab technicians then transferred provenience information onto the clean bags using a permanent ink marker (Sharpie®). An acid-free paper tag with complete provenience information was placed inside each artifact bag. Diagnostic specimens were individually bagged in separate plastic bags by FS number. Prehistoric lithic artifacts were subjected to descriptive and technological analyses, while historic artifacts were categorized as to their age and function, as discussed in more detail below.

As per the Pennsylvania State Museum Guidelines for Curation (2006), diagnostic artifacts were labeled with site and FS numbers. Artifacts collected during the project, as well as project field documents, will be curated at the Pennsylvania State Museum, pending donation by the landowners.

### 5.3 Architectural and Historical Survey

The architectural and historical resources survey consisted of background research, field survey, documentation of architectural and historical resources, and report preparation. The field survey phase of this project, conducted on July 24, 2009, involved a systematic survey of architectural and historical resources within the APE of the Upper Ohio Navigation Study. This field survey was conducted to identify architectural and historical resources that are potentially eligible for NRHP listing.

Pursuant to PHMC-BHP guidelines, these resources, including primary buildings and any contributing outbuildings, were digitally photographed and recorded on Pennsylvania Historic Resource Survey (PHRS) forms (Appendix C). The architectural style, condition, and important features of each resource were recorded, along with any major changes or alterations. Finally, each of the resources was mapped on USGS quadrangle maps of the study area.

The architectural and historical resources were evaluated for their significance according to NRHP criteria, the historic contextual background information collected for this project, and according to guidelines contained in *National Register Bulletin 15—How to Apply the National Register Criteria for Evaluation* (National Park Service 1998). In evaluating the surveyed architectural and historical resources, the integrity of each was assessed. Within the concept of integrity, the NRHP Criteria recognize seven aspects that, in various quantities, define integrity: location, design, setting, materials, workmanship, feeling, and association.





## 6.0 Cultural Resources Survey Results

Twelve parcels comprising the six study areas were examined during a project pedestrian reconnaissance. Disturbed areas, wetlands, and steep slopes were considered to have low to no potential for intact archaeological sites. The remaining areas were considered to have moderate to high potential for archaeological sites. Background research documented potential locations of structures or buildings over 50 years old, which was confirmed during the pedestrian reconnaissance.

Subsurface testing was conducted in three study areas: Dashields Primary, Dashields Secondary, and Montgomery Primary. These three areas encompassed about 55 acres of the total 119.8-acre study area. The purpose of this Phase I survey was to locate archaeological sites within areas that have a moderate to high probability for archaeological sites by utilizing subsurface testing and, whenever possible, surface collecting. The fieldwork was performed as weather permitted between July 13 and 17, 2009. Three archaeological sites were identified including one previously recorded site.

The field survey phase of the architectural and historical survey was conducted on July 24, 2009. This resulted in the identification of two resources greater than 50 years of age within the study area's APE. The findings of the architectural and historical survey are described by area below.

### 6.1 Emsworth Primary

#### 6.1.1 Location

Emsworth Primary study area consists of a 17.2-acre parcel located on Neville Island between the Ohio River and Neville Road just east of Emsworth Dam (see Figures 1 and 4).

#### 6.1.2 Historic Land Use

Emsworth Primary study area has been industrially developed with multiple above-ground petroleum storage tanks from sometime before 1939 until at least 1967. This area was commercially developed with clusters of small buildings from at least 1967 to 2005. The areas around the buildings were not maintained and began to revert to scrub growth and woods.

#### 6.1.3 Current Land Use

This vacant lot was covered by scrub growth and young mixed hardwoods (Photographs 5 and 6). Monitoring wells dotted this area to monitor for contamination from past industrial activities at this location. A gas line currently runs through this area.

***Photograph 5. Overview of Emsworth, Primary Study Area. View to Northeast.***



This parcel was heavily disturbed by prior industrial activity. The Soil Survey designates this location as Urban Lands. Urban Lands are characterized by level-to-nearly-level lands on the floodplain covered by over two feet of fill material (Newbury et al. 1981:31).

***Photograph 6. Emsworth Primary Study Area. View to Northeast.***



#### 6.1.4 Results

No previously recorded archaeological sites or standing structures are located within this area. No architectural or historical resources 50 years of age or older were identified in this study area. Based on the information presented in the Natural Resource Assessment report, including reviews of historic land use and the disturbed conditions observed during the pedestrian reconnaissance (see Aerostar 2009), it is recommended that no subsurface archaeological investigations are warranted.

## 6.2 Emsworth Secondary

### 6.2.1 Location

Emsworth Secondary study area consists of portions of three parcels (13 acres, 1.6 acres, and 0.4 acres) totaling 15.0-acres located on Neville Island between the Ohio River and Neville Road just west of Emsworth Dam (see Figure 1 and 4).

### 6.2.2 Historic Land Use

Emsworth Secondary study area was farmland through ca. 1950. The railroad along the southern edge of this area was built before 1939. There were clusters of structures in the area from ca. 1953-1967. Industrial development started sometime between 1967 and 1973. From at least 1985 to at least 2002, this area was developed as part of Exxon's Bulk Storage facility.

### 6.2.3 Current Land Use

At the time of the pedestrian reconnaissance, 250,000-gallon petroleum storage tanks were built and others were being constructed on the property (Photograph 7). Large-scale earthmoving activities were associated with these storage tank fields. There was a large concrete pad of unknown function that covered a large section of this area (Photograph 8). There were also piles of railroad ties and other railroad-related debris.



***Photograph 7. Storage Tank (on right) in Emsworth Secondary Study Area. View to Northwest.***



***Photograph 8. Concrete Pad and Storage Pile in Emsworth Secondary Study Area. View to Southwest.***

The southern parcels encompass a railroad line south of Emsworth Dam and Dickinson Fleet Services. Mixed hardwoods, weeds, and low-lying shrubs covered this lot. These parcels were heavily disturbed by prior industrial activity. The soils in this study area were characterized as Urban Lands (Newbury et al. 1981).

#### 6.2.4 Results

No previously recorded archaeological sites are located within these three parcels. Based on the disturbed condition of this area, it is recommended that no subsurface archaeological investigations are warranted. The railroad line is over 50 years of age and was documented (Figure 20).

**Figure 20. Location of Pittsburgh and Ohio Valley Railway near Emsworth Secondary**

***Pittsburgh & Ohio Valley Railway  
South Side of Neville Island, Adjacent to Neville Road  
Neville Township  
Allegheny County***

Constructed in 1899, the Pittsburgh & Ohio Valley Railway (P&OV) is a shortline railroad that runs a distance of 2.04 miles on the heavily industrialized Neville Island (Photograph 9). This switching line performs general freight service (Saylor 1964: 255-256). It connects with the Pittsburgh & Lake Erie Railroad (P&LE) and the Pittsburgh, Chartiers & Youghiogeny Railroad (PC&Y) (Harvey 2002: 67). During the early-twentieth century, the P&OV was owned by the U.S. Steel Corporation, after which the Pittsburgh Coke and Chemical Company acquired it. In December 1993, CSX purchased the line (Lewis 1996: 360).



***Photograph 9. Pittsburgh & Ohio Valley Railway. View to the Northeast.***

In the vicinity of the study area, the Pittsburgh & Ohio Valley Railway consists of a single-tracked alignment of steel rails on wood ties constructed on stone ballast. There are several at-grade crossings of this railroad in the study area vicinity; however, there are no other associated railroad structures or facilities (bridges, depots, shops, etc.) within the immediate area.

While this short line railroad is associated with the industries of Southwestern Pennsylvania, it functions as a service railroad, connecting industrial facilities on Neville Island. It is not significant as a primary piece of transportation infrastructure, as other lines in the region provide greater service to outside markets. Therefore, the P&OV is recommended not eligible for NRHP listing under Criterion A. No information could be located that connects this railroad to any individuals significant in the history of the region. As such, this resource is recommended not eligible for NRHP listing under Criterion B. This railroad line stands as a typical single-track alignment, and no ancillary structures of engineering or architectural significance are located within the study area vicinity. Due to this relative lack of design significance, this resource is recommended ineligible for NRHP listing under Criterion C. Since the Pittsburgh & Ohio Valley Railway is recommended ineligible for listing on the NRHP, no further work is required.

## **6.3 Dashiels Primary**

### **6.3.1 Location**

Dashiels Primary study area consists of three parcels totaling 24.9 acres located between the north bank of the Ohio River and Ohio River Boulevard northwest of Dashiels Dam (see Figures 2 and 5). The site is bordered to the south by the Ohio River, to the north by a railroad line and Ohio River Boulevard, and to the west by an industrial park. Little Sewickley Creek runs between the east parcel and the two west parcels.



### 6.3.2 Historic Land Use

The eastern parcel of Dashields Primary study area was undeveloped in 1908. In the late 1930s, this area was used to stockpile materials and was accessed by a dirt road that crossed Sewickley Creek to the west. A railroad was constructed along the northeastern boundary sometime before 1960. Trees grew along the banks of Sewickley Creek and the Ohio River. From the 1970s to the present, it appears that the area was not maintained and was left to develop into scrub growth and woods.

The western parcel of Dashields Primary study area was undeveloped through 1959 although occasional roads traversed the area. Material was stockpiled in this area from ca. 1967-1980s. From the 1980s to the present, it appears that the area was not maintained allowing the vegetation succession process (scrub growth and woods) to begin again.

### 6.3.3 Current Land Use

The two smaller parcels comprising Dashields Primary study area fell within an industrial park and were heavily disturbed. Along the Ohio River, the large west parcel was used to offload barges. Large back-dirt piles, refuse, and 55-gallon drums were observed (Photograph 10). Trees and scrub growth covered parts of this parcel. All three land parcels fell within Urban Lands.

***Photograph 10. Refuse Piles in Dashields Primary, West Parcel. View to Southeast.***



The large parcel east of Sewickley Creek was used as a mulch stockpile area for Edgeworth Borough. Fill deposits, mulch piles, and steel, railroad ties, rocks, and other miscellaneous debris piles were visible. A sewage line (and lift station) is situated on the south side of the railroad right-of-way. There were mixed hardwoods forests along Sewickley Creek, along the railroad tracks, and near the road paralleling the Ohio River. The remaining areas either were cleared of vegetation or had scrub growth (Photograph 11). Some areas were unvegetated because slag was exposed on the ground surface.

***Photograph 11. Overview of Dashields Primary. View to East. (Note: Jeep is located on a slag surface.)***



#### 6.3.4 Results

There were no resources over 50 years of age identified during the architectural and historical survey of Dashields Primary. A railroad underpass, over 50 years of age, was observed while accessing Dashields Primary via a borough park (Photograph 12). However, this overpass will not be affected by the current undertaking, as access to this study area will be obtained through the industrial park.



***Photograph 12. Railroad Underpass. View to North.***

As noted in the background research, two historic district boundaries are shown in part of this study area, but field verification indicated that these boundaries were not justified. No previously recorded archaeological sites or standing structures are located within these three parcels. Limited subsurface testing was recommended for the 24.9-acre parcel at Dashields Primary study area. The project workplan subsurface testing strategy included three machine-excavated trenches and approximately 30 shovel probes to test the landform and characterize any intact soil stratigraphy beneath the fill deposits.

Prior to excavating any trenches, a Pennsylvania Natural Diversity Inventory (PNDI) was requested from the Pennsylvania Fish and Boat Commission. The workplan also required an excavation plan and an erosion and sediment control plan prior to trench excavations (Appendix E).

Excavations documented recent fill over industrial slag, which formed a barrier at least 6 ft thick (Photograph 13). Machine excavation failed to penetrate the slag deposits at any of the six locations (each end of three trench locations) where it was attempted in one day of excavation (Figure 21).



***Photograph 13. Typical Machine-excavated Trench Sample. View to Northwest.***

**Figure 21. Dashiels Primary Testing Locations**



Several SPs were attempted in this area. One SP located inside the tree line reached a depth of 35 inches (89 cm) but was still within modern fill. Other attempted SPs in the field were stopped by slag after a few inches (see Figure 21). Subsequent discussions with District personnel led to a contract modification to eliminate this location from additional subsurface testing.

## **6.4 Dashields Secondary**

### **6.4.1 Location**

Dashields Secondary study area consists of portions of three parcels totaling 8.2-acres. This study area is situated northwest of Dashields Dam on a bluff on the south side of the Ohio River in the vicinity of Dashields Lock Road (see Figures 2 and 4). This area is bordered by the steep riverbank to the north and upland areas to the east, south and west. McCutcheon Road enters the northwestern end of the site from the south.

### **6.4.2 Historic Land Use**

Dashields Secondary study area was residentially developed on the west side from sometime before 1876 to at least 1959. The eastern side was undeveloped at that time. By 1967, there was some industrial development as indicated by two above-ground storage tanks. The eastern side was part of a sewage treatment plant ca. 1975–2000s. The eastern section was also developed into a maintenance facility for Crescent Township. The western side was developed into a local park beginning in ca. 1980 with a pavilion, baseball field, playground, and parking facilities.

### **6.4.3 Current Land Use**

This lot was covered by deciduous trees, low-lying brush, and a park (playground, baseball field [Photograph 14], and picnic pavilion) with mowed grasses, and a road maintenance facility for Crescent Township.

***Photograph 14. Baseball Field in Park.  
View to Southwest.***



The area is accessed by McCutcheon Road, which enters the northwestern end of the site, turns southeast, and terminates at the road maintenance facility. The park area (west end) appears to be artificially leveled while the east end (road maintenance facility area) was heavily disturbed (Photograph 15). The soils in this location were generally mapped as Rainsboro silt loam, 3-8 percent slope with part of the edges falling within Gilpin-Upshur complex, very steep (Newbury et al. 1981).

***Photograph 15. Road Maintenance Structure. View to South.***



#### 6.4.4 Results

No architectural or historical resources at least 50 years old were identified in this study area. No previously recorded archaeological sites or architectural resources are located within these three parcels. Although map research indicated that there were three houses in this study area in the late-nineteenth and early to mid-twentieth century, there were no longer any houses in this study area. The SOW required limited hand-excavation of about 15 shovel probes to test for archaeological sites within the park area.

Background research for Dashields Secondary study area indicated that the northwestern portion of this area (park) had a high potential for historic remains associated with the former ca. 1933-1973 locktenders' houses and a moderate to high potential for prehistoric sites. The SOW recommended excavation of at least 15 shovel probes. Eight shovel probes excavated at 15-meter intervals in one transect identified archaeological Site 36AL600; four of these probes produced artifacts (Figure 22).

Typical soil profiles consisted of one or two CA horizons (fill) comprised of brown (10YR5/3) silt loam overlying an Ab horizon (buried A horizon) composed of dark brown (10YR3/3) silt loam, capping yellow brown (10YR5/6) clay loam sterile subsoil (B horizon) (Figure 23). The depth of the fill was variable. The thickness of the buried A horizon varied between 10 cm and 35 cm, which is probably a result of past earthmoving activities. Most of the historic artifacts were located within the fill stratum, although in the first few SPs, excavators did not identify the presence of an intact Ab horizon until after the SP was excavated. All of the prehistoric artifacts were recovered from the Ab horizon.

**Figure 22. Dashiels Secondary Testing Locations**

**Figure 23. Typical Soil Profiles, Dashields Secondary Study Area**

**Site 36AL600**

Excavations documented Site 36AL600, a multicomponent site with a prehistoric lithic scatter or open habitation site and a historic artifact scatter found within a buried A horizon in the park area (Photograph 16; see Figure 22). The typical soil profile consisted of a CA horizon (fill) comprised of brown silt loam (10YR5/3) overlying an Ab horizon (buried A horizon) composed of dark brown silt loam (10YR3/3) capping yellow brown clay loam (10YR5/6) sterile subsoil (B horizon) (see Figure 23). Site 36AL600, discovered while digging shovel probes at Dashields Secondary, measured approximately 76x18 meters. Shovel testing at the site consisted of five positive shovel probes at 15-meter intervals. Of the 18 radial shovel probes excavated at 5-meter intervals around the four positive tests, three produced artifacts.



**Photograph 16. Overview of Site 36AL600.  
View to Northwest.**

Excavations produced 11 prehistoric artifacts (Table 8) and 18 historic artifacts. Most of the historic artifacts were recovered from the fill deposits except for three whiteware sherds found in the Ab horizon within SP 1. The historic artifacts within the fill deposits (CA horizons) may be from secondary deposition are not considered part of this site. Prehistoric artifacts include one projectile point base, one biface, and nine debitage. The projectile point fragment appears to be a Late Archaic Brewerton side notched point (Photograph 17).

**Table 8. Site 36AL600, Dashields Dam**

Raw Material	Bifaces	Debitage	Total	%
Black Chert	1	5	6	54.5%
Tan Chert		1	1	9.1%
Gray Chert, Fossiliferous	1		1	9.1%
Laurel Chert		3	3	27.3%
<b>TOTAL</b>	<b>2</b>	<b>9</b>	<b>11</b>	<b>100.0%</b>

**Recommendations.** Site 36AL600 is a multicomponent site with a Late Archaic prehistoric component and a historic component found within an intact buried A horizon. This Late Archaic campsite component appears to possess good integrity. The site may have potential to add to our understanding of the prehistory of the region (Criterion D). Additional work would be necessary to assess its eligibility for listing to the National Register of Historic Places.

***Photograph 17. Brewerton Side Notched Point Base.***



## **6.5 Montgomery Primary**

### **6.5.1 Location**

Montgomery Primary study area consists of three parcels totaling 22.2 acres located between the south bank of the Ohio River by Montgomery L&D and the CSX Railroad which runs along the southern boundary (see Figures 3 and 6).

### **6.5.2 Historic Land Use**

Montgomery Primary study area west of Squirrel Run has remained an undeveloped woodlot during most of the twentieth century. Evidence of a ca. 1876-1904 house located east of Squirrel Run may have been removed when the lower reaches of this stream was moved to the west to empty into the Ohio River downstream of the lock wall. The area east of Squirrel Run included the location of a former ca. 1876-1930s house. Later, a second structure was constructed in the area. The clearing around the houses (yards and fields) was maintained through the late 1960s. By the 1970s, the cleared yard and field areas showed evidence of reverting to scrub growth and woodlots. The railroad line was established along the southern limits of the project area by 1952.

### **6.5.3 Current Land Use**

This wooded area had some open areas covered with scrub growth (Photograph 18). The parcels included the floodplain and terraces along the river, and were moderately disturbed by construction of the railroad line, Montgomery locks and dam, and access roads, in addition to flooding and erosion. Erosion and scouring was present along the northern limits of the study area as evidence by water rolled logs caught among the trees in the floodplain west of Squirrel Run.



***Photograph 18. Overview of Montgomery Primary. View to East.***



There were three structures present during the July survey including a driveway leading to a modern building (on District property on the northwest side of the project area), an abandoned mobile home, and an abandoned garage. The garage, which appeared to be over 50 years old, required documentation. (Note: This structure was destroyed by fire sometime after it was documented.) A railroad runs along the southern study limits (Photograph 19). The Montgomery Primary study area west of Squirrel Run is densely forested. East of Squirrel Run the study area is a mix of forest and open fallow field reverting to scrub growth. The riverbank has a sandy beach zone.



***Photograph 19. Railroad along Montgomery Primary's Southern Boundary. View to South.***

#### 6.5.4 Results

Background research indicated that one previously recorded archaeological site covered most of this area. There is a high potential for unrecorded prehistoric and historic sites in the remainder of the area. This area had both architectural and archaeological resources.

The pedestrian reconnaissance indicated massive disturbances occurred on the north and northeast portion of the area west of Squirrel Run. No remains of the buildings associated with the dam construction were found, but the area east of this foundation was heavily disturbed with heavy equipment. There were two piles of construction debris observed during fieldwork, including an old dormer and a wood scatter under a pine tree. Modern 4x4-inch wood posts in these two locations suggest that these were salvaged construction materials.

Twenty-eight shovel probes excavated at 15-meter (50-foot) intervals across this study area (Figure 24). Excavations documented one prehistoric site west of Squirrel Run (36BV357), one isolated historic artifact find (SP 19), and re-identified Site 36BV131. Forty judgmental and radial SPs were excavated to define site limits of both sites and the isolated find, bringing the total to 68 shovel probes excavated in this study area.

Soil stratigraphy across Montgomery Primary study area varied (Figure 25). In general the stratigraphy consisted of brown to dark brown (10YR4/3 to 10YR3/3) silt loam to loam approximately 20-25 cm thick overlying yellowish-brown to dark yellowish-brown (10YR5/4 to 10YR4/4) silt or silt loam. All of the artifacts were recovered from the A horizon.

**Figure 24. Montgomery Primary Testing Locations**



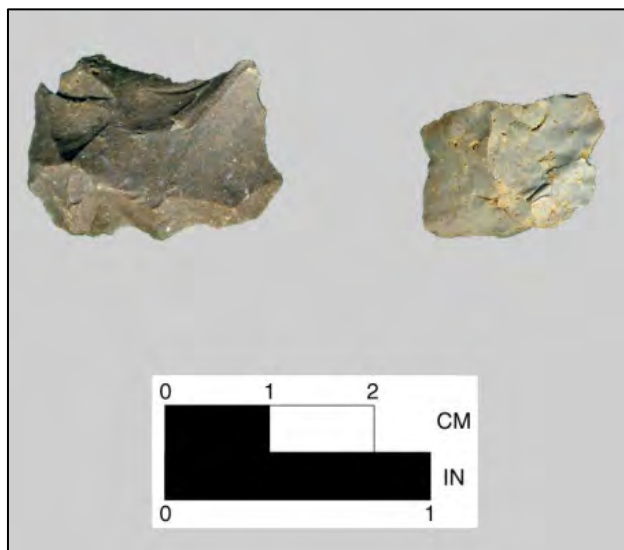
**Figure 25. Typical Soil Profiles, Montgomery Primary Study Area**

### Site 36BV357

Excavations of three shovel probes (SP 25-27) and three radial shovel probes west of Squirrel Run documented one prehistoric site, 36BV357. This site, located on a terrace 20 m north of the railroad tracks, measures approximately 15 m in diameter. The site area is eroded to the north, heavily disturbed to the east and west, and south of the site is moderate hillslope.

Excavations produced six prehistoric lithic debitage (biface reduction flakes and decortication flakes) from one shovel probe and two radial shovel probes (Photograph 20; Table 9). These debitage were produced from Uniontown, Monongahela, Gull River, and black chert. No temporally diagnostic artifacts were recovered.

**Photograph 20. Two Biface Reduction Flakes from Site 36BV357.**



**Table 9. Lithic Artifacts from Site 36BV357**

Raw Material	Debitage	%
Black Chert	1	16.7%
Gull River	1	16.7%
Monongahela	2	33.3%
Uniontown	2	33.3%
<b>TOTAL</b>	<b>6</b>	<b>100.0%</b>

**Recommendations.** Site 36BV357 is a small (15 m diameter), low-density lithic scatter of unknown temporal affiliation. No features were identified. The area around the site was heavily eroded and disturbed. It is unlikely that this site would yield information that would significantly add to our understanding of the prehistory of this region. Therefore, it is recommended that this site does not meet the minimum criteria for listing on the National Register.

**Site 36BV131**

Site 36BV131 was originally reported by a collector as a large prehistoric scatter along the Ohio River. This site was never field checked by a professional archaeologist. SPs were excavated at 15m intervals across a terrace within this previously recorded site (Photograph 21). This study resulted in the identification of both prehistoric and historic artifacts within a much smaller area (152.4x28 m or 500x92 ft) than indicated on the original PASS form.

There were three positive SPs excavated at 15-m intervals along a terrace. Judgmental shovel probes were excavated around a stone house foundation, which appears to be the location of the former Kenyon-Emerick house. Radial shovel testing was conducted around positive SPs around the foundation remains. A surface collection was conducted around a stone house foundation also. Soil stratigraphy consisted of a thin (10-12 cm) very dark grayish-brown (10YR3/2) loam plowzone (Ap horizon) capping a brown (10YR4/3) silt loam AB horizon. All of the artifacts were recovered from the Ap or AB horizon (see Figure 25).

***Photograph 21. Overview of Site 36BV131. View to West.***



The former Kenyon-Emerick house was constructed of stone (see Photograph 4). A concentration of rock, some of which appeared to be cut stone, and partial remains of a foundation identified the former house location (Figure 26). The foundation remnant measured 19 x 26 ft (5.8 x 7.9 m) and was constructed of dry laid tabular stone. In some areas, the foundation consisted of several stacked stone rising about one foot (30 cm) above the ground surface while in other areas, no stacked stone courses were encountered. A few dressed stones were found scattered among the stone rubble. This location and the concentration of rocks is consistent with the former Kenyon-Emerick house (see Photograph 4), which has a dry laid foundation supporting a mortared stone house with a few dressed stones apparent around the doorway on the ground floor at the northeast corner (see Photograph 4). The stone rubble is concentrated around the foundation remnant and it appears that much of the construction stones and other construction debris were removed at some time in the past.

There were too many rocks around the foundation to excavate SPs successfully within or immediately adjacent to the identified foundation area. The SPs excavated around the identified foundation did not identify any additional remains of the former structure (see Figure 24). A few bottles were observed on the ground surface nearby.

**Figure 26. Kenyon-Emerick Foundation Detail**

Excavations produced 43 artifacts including one prehistoric artifact and 42 historic artifacts (Table 10). The prehistoric artifact was an indeterminate biface produced from Upper Mercer chert (Photograph 22).

**Photograph 22. Upper Mercer Biface Fragment from Site 36BV131.**



Historic artifacts include wire, wire nail, metal rod, ceramics, window glass, lamp chimney glass, plastic, and one bone fragment. Ten of the historic artifacts were temporally diagnostic, producing a mean date of 1922 for the historic component of the site (Table 11).

**Table 10. Pattern Analysis for Site 36BV131**

Class	Sub-Class	Ware Type/Object	Sum	% Sum
Activities	Activities-Other	Wire	1	2.3%
<b>Activities Total</b>			<b>1</b>	<b>2.3%</b>
Architecture	Nails, Spikes, etc.	Nail, indeterminate	2	4.7%
		Nail, wire	1	2.3%
	Window Glass	Window glass	10	23.3%
<b>Architecture Total</b>			<b>13</b>	<b>30.2%</b>
Faunal	Bone	Bone	1	2.3%
<b>Faunal Total</b>			<b>1</b>	<b>2.3%</b>
Furnishings	Lighting	Chimney lamp glass	2	4.7%
<b>Furnishings Total</b>			<b>2</b>	<b>4.7%</b>
Kitchen	Bottles/Jars	Beverage bottle	1	2.3%
		Bottle glass	9	20.9%
		Mason jar	2	4.7%
	Ceramics	Earthenware	1	2.3%
		Stoneware, buff	1	2.3%
		ironstone	1	2.3%
		Whiteware, handpainted	1	2.3%
		Whiteware, plain	3	7.0%
		Yellowware, plain	1	2.3%
<b>Kitchen Total</b>			<b>20</b>	<b>46.5%</b>
Unidentifiable	Indeterminate	Misc metal	1	2.3%
		Plastic, fragment	4	9.3%
<b>Unidentifiable Total</b>			<b>5</b>	<b>14.0%</b>
<b>Grand Total</b>			<b>42</b>	<b>100.0%</b>

**Table 11. Dating Analysis for Site 36BV131**

<b>Class</b>	<b>Ware Type/Object</b>	<b>Ct</b>	<b>Begin Date</b>	<b>End Date</b>	<b>References</b>
Architecture	Nail, Wire	1	1880	2008	Nelson 1968; IMAC 1984
Kitchen	Mason jar; Complete; Standardized screw thread; Clear; "Atlas Strong Shoulder Mason"	1	1919	2009	Deiss 1981
Kitchen	Dads Root Beer Bottle; Complete; Crown finish; Stippled, Clear; "Dad's, No Deposit, Half Gallon" "Patent Pending Copyright By Dads Root Beer Co Chicago Ill" Fairmont Glass Works	1	1933	1968	Toulouse 1971; Lief 1965
Kitchen	Ball Mason jar; Complete; Standardized screw thread; Clear; "Ball"	1	1919	2009	Deiss 1981; Toulouse 1971
Kitchen	Ironstone, plain; Body	1	1840	2009	Wetherbee 1980
Kitchen	Whiteware, plain; Body	3	1830	2009	Price 1979; Noel Hume 1980
Kitchen	Yellowware, plain; Body	1	1830	1900	Ketchum 1987
Kitchen	Whiteware, handpainted; Body; Med. Blue	1	1840	1860	Lofstrum et al 1982; Majewski & OBrien 1984
<b>Mean Date:</b>		<b>1922</b>			

**Recommendations.** Site 36BV131 is a previously recorded prehistoric site. The current investigation indicates that the site also has a late-nineteenth to twentieth-century historic component. This site is located in the vicinity of a structure that was depicted on an 1904 historic map and includes a stone house foundation, artifact scatter, and garage (garage was burned down between July and November 24, 2009) (see Figure 19). Additional research is needed to ascertain site size, reconstruct the chain-of-title, and determine whether the site possesses the potential to add important information to our understanding of the history of this region (Criterion D). Therefore, it is recommended that this site is avoided. If avoidance is not feasible, it is recommended that Phase II investigations are necessary to evaluate this site under Criterion D to determine its eligibility for listing in the National Register of Historic Places.



***Unnamed Garage (possibly associated with 36BV131)  
Along Montgomery Dam Road  
Potter Township  
Beaver County***

This one-story wood-framed garage is located in the central portion of this area (Figure 27). It stands on a wood pier foundation, and its exterior walls are clad with weatherboard siding (Photograph 23). The gable front roof is covered with rolled asphalt and is trimmed with exposed rafter tails. The fenestration consists of two-light, fixed sash windows. However, the glass windowpanes are broken, and chain link fencing now covers the apertures. A shed roof addition had been appended to the rear (east elevation) of the garage, but has collapsed. It features vertical wood siding and rolled-asphalt roofing material. A second addition has been attached to the north elevation. It is clad in plywood and topped with a shed roof. Overall, this garage is severely deteriorated and nearly collapsing.



***Photograph 23. Unnamed Garage along Montgomery Dam Road. View to the West.***

Subsequent to the field visit, the garage was destroyed by fire (Photograph 24). A photograph of the burned rubble indicates that one of the foundation walls was set on cinderblocks.



***Photograph 24. Remains of Unnamed Garage after Fire. View to the East.***

**Figure 27.     Location of Unnamed Garage near Montgomery Primary**



Evidence to tie this resource to any significant events in local history could not be identified. It is not associated with the nearby Montgomery L&D facility. As such, this garage is recommended ineligible for listing under Criterion A. This property is not associated with any significant individuals in local or state history and is therefore recommended as not NRHP-eligible under Criterion B. This vernacular building is an unexceptional and deteriorated example of a regularly found architectural type common throughout the region. Therefore, this resource is recommended ineligible for NRHP listing under Criterion C. No further work for the Unnamed Garage structure is recommended. The archaeological component of the Unnamed Garage needs to be evaluated for NRHP listing under Criterion D (as contributing to Site 36BV131).

## **6.6 Montgomery Secondary**

### **6.6.1 Location**

Montgomery Secondary study area consists of one 32.3-acre parcel located between the south bank of the Ohio River and Montgomery Dam Road east of the Montgomery L&D (see Figures 3 and 6).

### **6.6.2 Historic Land Use**

The Montgomery Secondary study area was primarily undeveloped land surrounding a house from the late-nineteenth century to at least 1939. The area was commercially/industrially developed sometime between 1939 and 1952 to the present. Extensive earthmoving activities occurred along the river by 1952. Large excavations and material stockpiles were present in 1969. A synthetic gypsum plant has occupied the area since sometime before 1977.

### **6.6.3 Current Land Use**

This lot was covered by mixed hardwoods and scrub growth around the periphery, but most of the parcel was part of a gypsum synthetic plant with a large materials stockpile and access roads (Photograph 25). Barge moorings were located along the riverbank. An undeveloped woodlot in the southeastern end of the parcel was a forested wetland area (Photograph 26).

***Photograph 25. Gypsum Stockpile in Montgomery Secondary. View to Northeast.***



***Photograph 26. Overview of Montgomery Secondary. View to Southeast.***



#### 6.6.4 Results

No previously recorded archaeological sites or standing structures were documented within this area. No architectural or historical resources over 50 years old were observed. Based on the disturbed condition of this study, it is recommended that no subsurface archaeological investigations are warranted. There were no architectural or historical resources identified in the Montgomery Secondary study area that were 50 years of age or older.

## **7.0 Summary and Recommendations**

From July through December 2009, a cultural resource assessment was conducted as part of the Upper Ohio Navigation Study, Pennsylvania, on behalf of AES and the District. Three Primary and three Secondary work and staging area locations totaling 119.8 acres in Allegheny and Beaver counties, Pennsylvania, comprise the study areas. There are two study areas for each L&D facility (Emsworth, Dashiels, and Montgomery). The SOW required a walkover of all six locations and additional cultural resources investigations at Dashiels Primary, Dashiels Secondary, and Montgomery Primary study areas. The purpose of this study is to provide cultural resource characterizations of these six potential work and staging area locations for a NEPA EIS to accompany analyses that discuss suitability of lands necessary to conduct any proposed work at these three locks and dams.

### **7.1 Archaeological Investigations**

Archaeological investigations included background research, a pedestrian reconnaissance, and limited subsurface testing. Background research indicated that all three study areas had a moderate to high potential for prehistoric sites. Map research suggests a high potential for historic sites at the Dashiels Secondary and Montgomery Primary study areas. The survey documented three archaeological sites (36AL600 [in Dashiels Secondary study area], 36BV131 [in Montgomery Primary study area], and 36BV357 [in Montgomery Primary study area]) and one isolated historic find (in Montgomery Primary study area).

Subsurface investigations at Dashiels Primary study area revealed that this area was covered by modern fill overlying at least 6 ft of slag, which could not be penetrated with an excavator. After attempting to excavate through the slag for one day, the District was notified of the conditions. The contract was subsequently modified to eliminate further subsurface testing at this area.

Site 36AL600, a multicomponent site measuring approximately 76x18 m (250x60 ft), was documented within Dashiels Secondary (park area). The site and surrounding area was artificially leveled then covered with fill deposits. An intact Ab horizon with prehistoric and historic artifacts was located beneath fill deposits. The prehistoric component consists of a Late Archaic campsite. The historic component may be associated with the former locktenders' houses. It is recommended that this site (prehistoric and historic components) is potentially eligible to the NRHP under Criterion D and should be avoided. If avoidance is not feasible, further archaeological investigations (Phase II) are recommended to evaluate site eligibility for the NRHP under Criterion D. Phase II investigations should include close-interval SPs, limited test unit excavation, and archival research. The archival research should include reconstructing the chain-of-title, census records, and available tax assessment records.

Site 36BV357 was identified west of Squirrel Run within Montgomery Primary study area. This is a small (15 m in diameter), low density, lithic scatter of unknown temporal affiliation. No features were identified. This site does not possess the potential to contribute significant information to our understanding of the prehistory of the Upper Ohio River Valley. It is recommended that this site does not meet the minimum criteria for listing to the NRHP. No additional work is recommended.

Site 36BV131 (152.4x28 m or 500x92 ft) is situated south of the Montgomery Dam on a high river terrace. This previously recorded prehistoric site was originally defined to cover the floodplain and terraces between the river and a railroad line. The floodplain and lower terraces were disturbed by construction of Montgomery Locks and Dam. Excavation of 68 shovel probes produced only one prehistoric artifact and 42 historic artifacts within a smaller area than the original identified site limits, and one isolated historic find. The prehistoric component produced only one artifact and no associated features. The lack of features and paucity of artifacts limit the research potential of the prehistoric component.

Site 36BV131 also has a ca. 1870s-1930s historic component. This site, located in the vicinity of a structure depicted on a 1904 map, includes a stone house foundation remnant, artifact scatter, and garage. The garage, recorded on a PHRS form, has since burned down. A driveway connects the house foundation remnant and the garage with the artifact scatter falling between these two locations. Additional research is needed to ascertain site size, reconstruct a chain-of-title to determine whether the former garage is associated with the site, and determine whether the site possesses the potential to add important information to our understanding of the history of this region (Criterion D). Therefore, it is recommended that this site be avoided and if avoidance is not feasible, it is recommended that Phase II investigations be conducted to evaluate the historic component of this site under Criterion D. Phase II investigations should include close-interval SPs, limited test unit excavation, and archival research. The archival research should include reconstructing the chain-of-title, census records, and available tax assessment records.

## 7.2 Architectural and Historical Survey

This 2009 survey resulted in the reconnaissance-level survey of two architectural and historical resources in the Upper Ohio Navigation Study area. The property types include a railroad and a garage. The two architectural and historical resources were evaluated for their significance according to NRHP Criteria, the historic contextual background data collected for this project, and applicable National Register guidelines. In evaluating the surveyed resources, both the historical significance and architectural integrity of each was assessed, utilizing the seven aspects of integrity as recognized by the NRHP. Table 12 presents a summary of the two identified architectural and historical resources.

**Table 12. Architectural and Historical Resources in the Upper Ohio Navigation Study Area**

Name	Location/ Address	Township/ County	Date	Historical Function	Recommendation
Pittsburgh & Ohio Valley Railway	South side of Neville Island, adjacent to Neville Road	Neville/ Allegheny	1899	Railroad	Not NRHP-Eligible
Unnamed Garage	Along Montgomery Dam Road	Potter/Beaver	c1950	Garage	Not NRHP-Eligible

Following evaluation of the two identified resources against the historic context of the region, and using the National Register Criteria for evaluation, it is recommended that neither of the resources is eligible for NRHP listing. The Pittsburgh & Ohio Valley Railway does not stand out as exemplary in the history of transportation improvements, commerce, and corporate capitalism in southwestern Pennsylvania. The Unnamed Garage (possibly associated with Site

36BV131) lacks integrity, historical significance, architectural merit, and historical association with significant events or individuals. No additional documentation is recommended for these two resources. (Note: The garage burned down since the structure was recorded and is not available for additional documentation.)



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**APPENDIX A**  
**PROJECT DOCUMENTATION**





## **STATEMENT OF WORK**

**CONTRACT NO. W912QR-08-D-0009, TASK ORDER NO. DV02**

### **UPPER OHIO NAVIGATION STUDY, PENNSYLVANIA POTENTIAL WORK AND LAYDOWN AREA ENVIRONMENTAL AND CULTURAL RESOURCE ASSESSMENTS**

#### **1. BACKGROUND**

The Upper Ohio Navigation Study, Pennsylvania, is a feasibility planning study for alternatives to modernize the three locks and dam facilities on the Ohio River in Pennsylvania, viz. Emsworth, Dashields and Montgomery locks and dams. This study will examine and compare future conditions with and without modernization alternatives to determine the most cost effective, environmentally acceptable alternative. A National Environmental Policy Act (NEPA) environmental impact statement will accompany the planning analyses. Included in the planning analyses are the identification and suitability of lands necessary to conduct any proposed work at these navigation facilities.

Six separate sites have been identified by the Pittsburgh District as potential work and staging areas, consisting of a Primary and Secondary site in the vicinity of each of the three navigation facilities. Each site may involve multiple property owners. The boundaries of each site are shown in Figures 1, 2 and 3. On the figures, the Primary and Secondary work area sites to be investigated under this Task Order are designated by label and shaded in light blue color. The other lines, numbers and colors on these figures designate other property boundaries or real estate issues not relevant to this work.

The work to be conducted under this Task Order includes the environmental and cultural resource characterization of these Primary and Secondary work area sites to support preparation of the Navigation Study's environmental impact statement under NEPA. This work may be classified into three main areas: a Phase I Environmental Site Assessment (ESA), a NEPA environmental assessment, and a cultural resource survey. While the Task Order specifies independent reporting of the three separate environmental and cultural resource components, the research for these components involves a certain amount of overlap. The Contractor will be expected to plan and conduct their work to avoid unnecessary duplication in these areas of overlap.

The Phase I Environmental Site Assessment will be conducted to assess the sites' potential for environmental liability concerns prior to obtaining a federal interest in real estate for project purposes. The purposes of the other assessments to be conducted, the NEPA environmental assessment and the cultural resource survey under the National Historic Preservation Act, include the identification and preliminary evaluation of the significance of natural and cultural resources at each of the sites. This information will be necessary for the navigation study to

assess the significance of alternative impacts involving the use of one or more of these sites, in furtherance of compliance with environmental and cultural resource protection legislation.

## 2. CONTRACTOR RESPONSIBILITIES

### A. General.

The Contractor shall furnish all personnel, equipment, materials, supplies, labor, transportation, shipping, communications and services required to accomplish the work specified under this scope of work (SOW). The Contractor shall be responsible for any and all materials and deliverables covered by this scope of work until they are delivered to and accepted by the District.

Site Access. The Contractor shall not obtain any real estate rights on behalf of the Federal Government to conduct this work. All necessary real estate rights-of-entry will be acquired by the District on behalf of the Contractor. Refer to “3. Government Rights and Responsibilities, Site Access” for a list of rights-of-entry.

Quality Control. A goal of the District is to ensure that quality products, satisfying the customer expectations, are delivered on schedule and within budget. The Contractor shall support this goal through developing a Quality Control Plan (QCP) to ensure that technical quality and schedules are achieved in the products produced as a result of each task order. The basic elements of a QCP include procedures for assigning independent technical review personnel, establishing a review process with checkpoints, defining important elements for review, and documenting the results of the review. Guidelines for the QC process are found in ER 1110-1-12, Engineering and Design Quality Management, 30 September 2006.

### Coordination.

Contractor's personnel shall be expected to work in close coordination with the Contracting Officer (CO), his authorized representative, or other assigned District personnel. The primary point of contact for this Task Order is Conrad Weiser, 412-395-7220. The technical point-of-contact for the Phase I ESA component is Michael Debes, Project Engineer, 412-395-7327; for the cultural resource component is Deb Campbell, Archaeologist, 412-395-7218.

The Contractor shall provide brief monthly progress reports following award of the Task Order. These reports may be submitted electronically. The Contractor shall routinely maintain a written record of all conferences, meetings, discussions, and other communications with others on matters relative to the assigned work, and submit a copy of these records to the District point of contact within five business days.

The Contractor is responsible for initiating timely coordination with the District to discuss and expedite solution of perceived problems or issues.

Safety. The Contractor will be responsible for the safe conduct of all work under this SOW, in adherence to the latest version of the US Army Corps of Engineers Safety and Health

Requirement Manual EM 385-1-1 (available at <http://www.usace.army.mil/inet/usace-docs/eng-manuals/em385-1-1/toc.htm>).

Publishing Restrictions. Neither the Contractor nor a Contractor's representative shall release or publish any information, sketch, photograph, report, or other material of any nature obtained or prepared under this contract without specific written approval of the Contracting Officer or his authorized representative. Records of archaeological site locations are considered to be internal documents and are not for public distribution. All reports, drawings, maps, photographs, notes, and other material developed in the performance of this Task Order shall be and remain the sole properties of the Government and may be used on any other work without additional compensation to the Contractor. The Contractor agrees not to assert any rights and not to establish any claim with respect thereto.

Travel and Per Diem. Reimbursement for travel and per diem will be according to prevailing federal rates established by the General Services Administration [<http://www.gsa.gov>] as reported in the Joint Travel Regulation.

## B. Specific Tasks.

### Task 1. Prepare Quality Control Plan

The Contractor will develop a Quality Control Plan (QCP) to ensure that technical quality and schedules are achieved in the products produced under this Task Order. The basic elements of a QCP include procedures for assigning independent technical review personnel, establishing a review process with checkpoints, defining important elements for review, and documenting the results of the review. Guidelines for the QC process are found in ER 1110-1-12, Engineering and Design Quality Management, 30 September 2006. The schedule, at a minimum, will assign delivery dates for each of the reports listed in Task 6. The Plan will be submitted in accordance with the specifications under Task 6. "Report Preparation and Submittals".

### Task 2. Participate in a Site Walk

Appropriate Contractor personnel shall attend and fully participate with District personnel in a one (1) day site walk of all sites – primary and secondary at the Emsworth, Dashields and Montgomery locks and dams. The intent of this site walk is to allow for the Contractor to become familiar with the sites. The completion of this Task will precede initiation of field work scheduled under other tasks.

### Task 3.A. Conduct the Phase I Environmental Site Assessment

The Phase I ESA should utilize the procedures outlined in ASTM Practice E 1527, titled *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*. The Phase I ESA will identify, to the extent feasible, recognized potential environmental concerns in connection with the property. The site assessment findings provide environmental site clearance for real property transactions. The intent is to demonstrate "due diligence" in conducting "all appropriate inquiry" in order to provide a basis for a legal defense

under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

The Phase I Environmental Site Assessment activities, as a minimum, are as follows:

- a. Environmental Database Search – Perform a database search 1-mile radius from each of the primary and secondary properties at each navigation facility.
- b. Physical inspection of the project area - Conduct a walkover of each site and adjacent parcels to the properties [to the extent allowable under federal rights-of-entry]. Interview local officials and people on or near the project site, as appropriate.
- c. Aerial photographs – Determine past and current property uses of property.
- d. Sanborn maps – Determine past property uses.
- e. Deed Searches – Conduct a Property Title History Report.
- f. Landowner contacts – Call, mail the questionnaire, and/or interview the landowner requesting information pertaining to the land that they own.
- g. Regulatory Information Review – If appropriate, review records from the Pennsylvania Department of Environmental Protection (PADEP) and other agencies.

Note: Chevron (primary property owner upstream of the Emsworth Main Channel Dam Left Abutment) has offered to make their environmental records on their involved property available to the District. The Contractor will contact Chevron prior to conducting any records research or field survey to obtain a copy of these records. Chevron POC: Michele Dygan, 770-984-4127.

#### Task 3.B. Phase II Environmental Site Assessment Recommendations

The Phase I ESA Report will present written justification for or against conducting a Phase II site investigation. State if a Phase II Site Investigation is recommended or not recommended. If recommended, formulate a sampling program that includes the type and level of testing required for a Phase II Site Investigation that would satisfactorily encompass the concerns identified in the Phase I study. In addition, based on the Phase I results, prepare an opinion on what potential remediation costs may entail and include a general magnitude of potential cost.

#### Task 4. Prepare a NEPA Environmental Assessment.

The Contractor shall perform an overview-level environmental assessment of all lands identified in this SOW and prepare a report describing the study, methodologies, and findings. Each of the sites is to be treated separately in the report. This assessment shall be conducted at a general level of effort sufficient to determine the presence and approximate extent of any significant natural resources. Significance is broadly defined to include resources protected under federal or state law, resources having public recognition as being important, and resources considered to have scientific or educational value.

The assessment shall include a records research and a field investigation. Evidences of historic and present disturbances/development will be documented in the report. The Contractor shall attempt to interview the land owners to identify and document any long term plans that would affect the future condition of their properties.

The Contractor will identify the potential for federal- and state-listed threatened and endangered species to occur at the studied sites through consultation with the Pennsylvania Natural Diversity Index and the appropriate resource agencies. If any potential species are identified through consultation, the Contractor will make an effort in field investigations to identify the presence or potential for presence of that species.

The field investigation will be conducted at a level of detail sufficient to describe general topography, habitat types, dominant and typical vegetative cover, wildlife habitat values, and land use. Particular attention will be given to identification and characterization of federally recognized or regulated resources: flood plains, prime farmland, wetlands, threatened and endangered species, etc.

The Contractor shall prepare site maps that delineate the different habitat types (e.g. riparian, upland, stream, wetland, etc.), and identify acreages of each. These maps will be included in the report, and will be prepared and submitted compatible with ArcView for incorporation into the District's GIS database.

#### Task 5. Perform a Cultural Resource Assessment.

The Contractor shall perform a cultural resources assessment of all lands identified in this SOW and prepare a report describing the study, methodologies, and findings. The assessment will consist of a Phase I records research and a limited field investigation consistent with the requirements of the Pennsylvania Bureau for Historic Preservation for this level of study. Each of the work areas and any associated historic properties are to be assessed and reported separately in the study report.

The Contractor will designate a Principal Investigator (PI) who will be responsible for the validity and professional quality of the cultural resource work, and who will be the primary point of contact for the routine administration and coordination. Contractor personnel employed to perform the specified work will meet the relevant qualifications as specified in *Archeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines (Federal Register Vol. 48, No. 190)*.

Field investigations. The limited field investigations shall consist of a combination of pedestrian reconnaissance and excavations consisting of a limited series of 50cm shovel probes (SP) supplemented with backhoe trenches in designated areas. All areas with available rights-of-entry are to be fully covered with pedestrian reconnaissance.

The proposed excavation plan, shown on Figures 4, 5 and 6, is based on available information. The Contractor may suggest alterations to this plan following the records research and other field work. All field excavations will be recorded using GPS coordinates, and prepared and submitted compatible with ArcView for incorporation into the District's GIS database.

All standing structures or objects will be inventoried and photographically recorded. All structures or objects having an estimated age of 50 years or more shall be documented on a Pennsylvania Historic Sites Survey Form.

Field excavation summary:

Emsworth (Primary) – no field testing (Chevron property)

Emsworth (Secondary) – no testing

Dashields (Primary) – three backhoe trenches, limited shovel probes (30±) in non-fill areas (Edgeworth property), no testing Buncher property)

Dashields (Secondary) - 15± shovel probes Crescent Twp park

Montgomery (Primary) – shovel probes (40±)

Montgomery (Secondary) – no testing (industrial, apparent fill)

Reporting. The cultural resource report will document all sources of information consulted in the records research. The discussion and conclusions section of the report shall include an assessment of the cultural resource potential for each survey area and landform. If further testing is indicated, the Contractor shall recommend the types and level of testing necessary to complete a full Phase I and/or Phase II investigation. Should the Contractor determine that any site(s) may be eligible for listing to the National Register of Historic Places, they will first consult with the District before making any recommendations in the report or consulting with the PaBHP. The authority for recommending determinations of eligibility rests with the Pittsburgh District Engineer.

Task 6. Report Preparation and Submittals.

The Contractor will prepare and submit separate reports for:

- a. Quality Control Plan,
- b. Phase I Environmental Site Assessment and Phase II ESA Recommendations,
- c. NEPA Environmental Assessment, and
- d. Cultural Resource Survey.

The Contractor shall prepare and submit each report in draft and final versions. The draft version shall be complete in all respects to allow for a single, complete review by the District. Any significant deficiency in the content of the draft report will constitute sufficient reason for non-acceptance. The draft and final reports shall be submitted in both hard copy and electronic copy for review.

Specifications for each report are summarized below:

- a. Quality Control Plan:
  - Draft – One (1) hard copy, unbound with removable corner clip for review.
  - Final – Three (3) bound hard copies, and provide electronic copy (1) on CD and separately as a scanned PDF file (1).
- b. Phase I Environmental Site Assessment Report and Phase II ESA Recommendations
  - 95% complete report - Six (6) copies unbound with removable corner clip for review. The report shall be typed double spaced in Times New Roman, 12 pt font, with one-inch margins. The hard copies shall be printed single-sided. The Contractor will summarize/discuss the methods and findings collected in Phase I ESA (Task 3.A., Conduct the Phase I Environmental Site Assessment).
  - Final Report - Eleven (11) copies, one (1) copy unbound, ten (10) copies in binders. The final report shall be typed single spaced in Times New Roman, 12pt font, with one-inch margins. The hard copy shall be printed two-sided. Provide electronic copies of the native electronic files, (1) on CD and one (1) copy separately as a scanned PDF file.
- c. NEPA Environmental Assessment
  - The draft report shall be double spaced in Times New Roman 12pt font, or equivalent, with one-inch margins, and printed two-sided. Five (5) bound hard copies. Binding may be of any suitable type. One (1) electronic copy on CD in MS Word and one (1) copy separately as a scanned PDF file.
  - The final report shall be single spaced in Times New Roman 12pt font or equivalent, with one-inch margins, and printed two-sided. Five (5) hard copies: One (1) hard copy unbound, and four (4) copies bound. Binding may be of any suitable type. Provide electronic copy (1) on CD and one (1) copy separately as a scanned PDF file.
- d. Cultural Resource Report
  - The draft report shall be double spaced in Times New Roman 12pt font, or equivalent, with one-inch margins, and printed two-sided. Five (5) bound hard copies. Binding may be of any suitable type. One (1) electronic copy on CD in MS Word and one (1) copy separately as a scanned PDF file.
  - The final report shall be single spaced in Times New Roman 12pt font or equivalent, with one-inch margins, and printed two-sided. Five (5) hard copies: One (1) hard copy unbound, and four (4) copies bound. Binding may be of any suitable type. Provide electronic copy (1) on CD and one (1) copy separately as a scanned PDF file.

### 3. GOVERNMENT RIGHTS AND RESPONSIBILITIES

Work Products. All reports, drawings, maps, photographs, notes, and other materials developed in the performance of work conducted under this SOW will remain the sole property of the Government. The Contractor may be required to use materials developed under one task order in another task order without additional compensation. The Contractor agrees not to assert any rights and not to establish any claims with respect thereto, and hereby agrees to furnish and provide access to all retained materials on the request of the Contracting Officer.

Site Access. All real estate rights-of-entry that are necessary for the proper conduct of the specified work will be acquired by the Pittsburgh District on behalf of the Contractor. The Contractor will not separately obtain any real estate rights on behalf of the Federal Government to conduct this work. A list of properties and status of the rights-of-entry are in Table 1. Copies of the Rights-of-Entry and relevant correspondence follow in Appendix A.

Table 1. Rights-of-Entry

L/D Facility	P/S* Site	Owner	ROE Effective Date	ROE Period
Multiple	P&S	CSX Transportation Inc.	16 Mar 09	24 mos.
Emsworth	Primary	Chevron		*
Emsworth	Secondary	Pittsburgh Terminals Corp.	16 Mar 09	24 mos.
Emsworth	Secondary	FedEx		
Dashields	Primary	The Buncher Co.	20 Mar 09	24 mos. **
Dashields	Primary	Borough of Edgeworth	17 Feb 09	24 mos.
Dashields	Secondary	Township of Crescent	16 Jan 09	24 mos.
Montgomery	Primary	Jerome Oliver	18 Feb 09	6 mos.
Montgomery	Secondary	PF Technologies	16 Apr 09	24 mos.

\* Advance notice sufficient

\*\* Advance notice and approvals required

Inspection. The performance of the Contractor and quality of the work delivered, including services rendered and the documentation in support thereof, shall meet generally accepted professional standards. They shall be subject to the inspection, review, and acceptance by the District. The CO or his representative may at all reasonable times inspect or otherwise evaluate the work being performed hereunder and the premises in which it is being performed. If the District performs any inspection or evaluation on the premises of the Contractor, the Contractor will provide all reasonable facilities and assistance for the safety and convenience of the District representatives in the performance of their duties. All inspections and evaluations will be performed in such a manner as will not unduly delay the work.



#### 4. SCHEDULE AND PAYMENT

The following schedule is to be followed after Receipt of Task Order:

Working Days after Receipt of Task Order	Task
4	Participate in a site walk with the USACE
5	Complete and submit a draft Quality Control Plan and Task Order Schedule (Task 6.a.)
10	Complete and submit a final Quality Control Plan and Task Order schedule (Task 6.a.)
25	Complete and submit 95% Phase I Environmental Site Assessment Report (Task 6.b.)
40	Corps conducts and completes review of 95% Phase I Environmental Site Assessment Report.
48	Complete the incorporation of 95% Corps comments into Phase I report. Complete the Phase I ESA Report based on the findings of the investigation; state if a Phase II Site Investigation is recommended or not recommended. If appropriate, complete formulation of a sampling program for a Phase II site investigation. Submit copies of the report. (Task 6.b.)
50	Complete and submit draft NEPA environmental assessment (Task 6.c.)
60	Complete and submit draft cultural resource report (Task 6.d.)
65	Corps conducts and completes review of NEPA EA
75	Corps conducts and completes review of cultural resource report
75	Final NEPA EA due (Task 6.c.)
80	Final cultural resource report due (Task 6.d.)

Note: The Phase I Environmental Site Assessment Report is scheduled to be completed before the NEPA and cultural resource reports. This will allow for the findings of the Phase I ESA to be incorporated into these other reports

Payment. Progress and final payments will be made in accordance with the requirements of the basic contract.





Figure 1. Emsworth Primary and Secondary Work Areas (Light blue areas only)





Figure 2. Dashields Primary and Secondary Work Areas (Light blue areas only)





Figure 3. Montgomery Primary and Secondary Work Areas (Light blue areas only)





Figure 4. Emsworth Primary and Secondary Work Areas (No cultural resource testing recommended)





Figure 5. Dashields Primary and Secondary Work Areas (Cultural resource testing shown as solid and dotted red lines)





Figure 6. Montgomery Primary and Secondary Work Areas (Cultural resource testing shown as dotted red line, Primary only)





## Archaeological Report Summary Form

ER# \_\_\_\_\_  
DATE 9/29/2009

**PROJECT CHECKLIST:** Please fill out a copy of this checklist and include it with your initial report submission, (including with management summaries or draft reports). This form may be downloaded and expanded as needed, but please do not eliminate any fields.

1. **Report Title** Phase I Cultural Resources Assessment Upper Ohio Navigation Study Emsworth, Dashields, and Montgomery Locks and Dams Allegheny and Beaver Counties, Pennsylvania

2. **PI** Lori A. Frye ( ☒ MA, ☐ PhD) /**Firm** or Institution GAI, Consultants

3. **Report Date** (Month/Day/Year) September 29, 2009

4. **Number of Pages** 75

5. **Agency Name** U.S. Army Corps of Engineers Federal ☒ State ☐

6. **Project Area County/Municipality** (list all)

County	Municipality
Allegheny, Beaver	Potter and Moon Townships

7. **Project Area Drainage(s)**, (list all)

Sub-basin	Watershed
Ohio River	D

8. **Project Area Physiographic Zone(s)** (list All) (Use DCNR Map 13 compiled by W.D. Sevon, Fourth Edition, 2000.)

Physiographic Zone
Pittsburgh Low Plateau Section

9. **Report Type** (some reports are combinations, check as many as apply to this report)

- |   |   |
|---|---|
| <input type="checkbox"/> Phase IA/Sensitivity Study | <input checked="" type="checkbox"/> Historic Structures |
| <input checked="" type="checkbox"/> Phase I         | <input type="checkbox"/> Geomorphology                  |
| <input type="checkbox"/> Phase II                   | <input type="checkbox"/> Determination of Effects       |
| <input type="checkbox"/> Phase III                  | <input type="checkbox"/> Other _____                    |

10. **Total Project Area** 48.48 hectares

11. **Low Probability/Disturbed Areas** 26.1 hectares = 53.8 % of project area

12. **Phase I Methods used for total project** (check as many as apply)

- ☒ shovel tests, ☐ controlled test units/deep tests,  
☒ surface survey, ☐ informant interview, ☐ other: \_\_\_\_\_

13. **Total Number of Sites** Encountered/Phase I 3

Total Sites Tested/Phase II \_\_\_\_\_

Total Sites Excavated/Phase III \_\_\_\_\_

**14. Updated PASS Information:** Please complete an updated PASS form **for each site** reported by this report. Updated forms need only include the new information and the site number and name.

**15. PASS Site Specific Information:** In addition, the following pages must also be completed **for each site**. Complete only the portions that pertain to the current report. If the report is a stand-alone Phase II, you do not need to fill in the Phase I methods, since they should have been included in the summary form for the previous report.

## 15. PASS Site Specific Information

Please complete the following **for each site** reported by this report.

**PASS NUMBER 36BV0131**

### A. Phase I Methods (how the site was located - check as many as apply)

- ☒ shovel tests, ☐ controlled test units/deep tests,  
☒ surface survey, ☐ informant interview, ☐ other: \_\_\_\_\_

### B. Phase II Methods

- ☐ controlled surface collection  
☐ controlled excavation w. screening of plowzone, > 5 units  
☐ mechanical stripping of plowzone (\_\_\_\_\_%)  
☐ deep excavation units  
☐ remote sensing  
☐ other \_\_\_\_\_

square meters of site tested: \_\_\_\_\_ sq. m

% of site area tested: \_\_\_\_\_ %

### C. Phase III Methods

- ☐ controlled surface collection  
☐ controlled excavation w. screening of plowzone, > 5 units  
☐ mechanical stripping of plowzone \_\_\_\_\_%  
☐ deep excavation  
☐ block excavations  
☐ remote sensing  
☐ environmental reconstruction (soils, floral, pollen)  
☐ dietary reconstruction (floral, faunal)  
☐ intensive lithic analysis (functional)  
☐ intensive lithic analysis (technological)  
☐ raw material sourcing  
☐ ceramic analysis (seriation)  
☐ ceramic analysis (functional)  
☐ blood residue  
☐ other \_\_\_\_\_

square meters of site tested: \_\_\_\_\_ sq. m

% of site area tested: \_\_\_\_\_ %

**Recommendations** (normally completed only after Phase II):

-- NR Eligibility recommendation

☐ eligible, ☐ ineligible, ☒ undetermined

-- reasons for determination (check as many as apply; expand as needed)

☐ eligible: Criterion A. Explain \_\_\_\_\_☐ eligible: Criterion B. Explain \_\_\_\_\_☐ eligible: Criterion C. Explain \_\_\_\_\_☐ eligible: Criterion D:☐ settlement patterning (intersite patterning)☐ intrasite artifact patterning☐ features☐ radiocarbon dating☐ organic preservation☐ evidence of culture change through time☐ stratified ☐ temporally discrete clusters☐ burials/human remains☐ technological☐ economics☐ ethnicity☐ dietary☐ other(specify): \_\_\_\_\_☐ ineligible☐ disturbed☐ ephemeral occupation☐ redundant information☐ undatable☐ other (specify): \_\_\_\_\_**E. Artifacts/Collections**☒ will be donated to the State Museum of Pennsylvania☐ gift agreement from private owner enclosed**- or -**☐ transfer of responsibility from State Agency enclosed☐ election of repository from Federal Agency enclosed☒ artifacts washed/marked/cataloged following State  
Museum guidelines

-- collection will be submitted by \_\_\_\_\_(date)

☐ will be donated to other approved repository ( **this option must be negotiated with the BHP and State Museum or stated as stipulation in MOA**)

☐ curation agreement enclosed

☐ artifacts washed/marked/cataloged following host guidelines

-- collection will be submitted by \_\_\_\_\_(date)

☐ will be retained by land owner (☐ whole or ☐ partial collection)

☐ expanded documentation enclosed for items retained

☐ proof enclosed that owner was notified of the option to

donate the collection to the State Museum and chose to retain the collection:

☐ letter from owner indicating desire to retain collection

- or -

☐ agency or representative discussed donation option with owner on \_\_\_\_\_(date)

- and -

☐ copy of letter and certified letter receipt indicating that the owner was offered this option in writing.

## 15. PASS Site Specific Information

Please complete the following **for each site** reported by this report.

**PASS NUMBER 36BV0357**

### A. Phase I Methods (how the site was located - check as many as apply)

- ☒ shovel tests, ☐ controlled test units/deep tests,  
☒ surface survey, ☐ informant interview, ☐ other: \_\_\_\_\_

### B. Phase II Methods

- ☐ controlled surface collection  
☐ controlled excavation w. screening of plowzone, > 5 units  
☐ mechanical stripping of plowzone (\_\_\_\_\_%)  
☐ deep excavation units  
☐ remote sensing  
☐ other \_\_\_\_\_

square meters of site tested: \_\_\_\_\_ sq. m

% of site area tested: \_\_\_\_\_ %

### C. Phase III Methods

- ☐ controlled surface collection  
☐ controlled excavation w. screening of plowzone, > 5 units  
☐ mechanical stripping of plowzone \_\_\_\_\_%  
☐ deep excavation  
☐ block excavations  
☐ remote sensing  
☐ environmental reconstruction (soils, floral, pollen)  
☐ dietary reconstruction (floral, faunal)  
☐ intensive lithic analysis (functional)  
☐ intensive lithic analysis (technological)  
☐ raw material sourcing  
☐ ceramic analysis (seriation)  
☐ ceramic analysis (functional)  
☐ blood residue  
☐ other \_\_\_\_\_

square meters of site tested: \_\_\_\_\_ sq. m

% of site area tested: \_\_\_\_\_ %

**Recommendations** (normally completed only after Phase II):

-- NR Eligibility recommendation

☐ eligible, ☐ ineligible, ☒ undetermined

-- reasons for determination (check as many as apply; expand as needed)

☐ eligible: Criterion A. Explain \_\_\_\_\_☐ eligible: Criterion B. Explain \_\_\_\_\_☐ eligible: Criterion C. Explain \_\_\_\_\_☐ eligible: Criterion D:☐ settlement patterning (intersite patterning)☐ intrasite artifact patterning☐ features☐ radiocarbon dating☐ organic preservation☐ evidence of culture change through time☐ stratified ☐ temporally discrete clusters☐ burials/human remains☐ technological☐ economics☐ ethnicity☐ dietary☐ other(specify): \_\_\_\_\_☐ ineligible☐ disturbed☐ ephemeral occupation☐ redundant information☐ undatable☐ other (specify): \_\_\_\_\_**E. Artifacts/Collections**☒ will be donated to the State Museum of Pennsylvania☐ gift agreement from private owner enclosed**- or -**☐ transfer of responsibility from State Agency enclosed☐ election of repository from Federal Agency enclosed☒ artifacts washed/marked/cataloged following State  
Museum guidelines

-- collection will be submitted by \_\_\_\_\_(date)

☐ will be donated to other approved repository ( **this option must be negotiated with the BHP and State Museum or stated as stipulation in MOA**)

☐ curation agreement enclosed

☐ artifacts washed/marked/cataloged following host guidelines

-- collection will be submitted by \_\_\_\_\_(date)

☐ will be retained by land owner (☐ whole or ☐ partial collection)

☐ expanded documentation enclosed for items retained

☐ proof enclosed that owner was notified of the option to

donate the collection to the State Museum and chose to retain the collection:

☐ letter from owner indicating desire to retain collection

- or -

☐ agency or representative discussed donation option with owner on \_\_\_\_\_(date)

- and -

☐ copy of letter and certified letter receipt indicating that the owner was offered this option in writing.



## 15. PASS Site Specific Information

Please complete the following **for each site** reported by this report.

**PASS NUMBER 36AL0600**

### A. Phase I Methods (how the site was located - check as many as apply)

- ☒ shovel tests, ☐ controlled test units/deep tests,  
☒ surface survey, ☐ informant interview, ☐ other: \_\_\_\_\_

### B. Phase II Methods

- ☐ controlled surface collection  
☐ controlled excavation w. screening of plowzone, > 5 units  
☐ mechanical stripping of plowzone (\_\_\_\_\_%)  
☐ deep excavation units  
☐ remote sensing  
☐ other \_\_\_\_\_

square meters of site tested: \_\_\_\_\_ sq. m

% of site area tested: \_\_\_\_\_ %

### C. Phase III Methods

- ☐ controlled surface collection  
☐ controlled excavation w. screening of plowzone, > 5 units  
☐ mechanical stripping of plowzone \_\_\_\_\_%  
☐ deep excavation  
☐ block excavations  
☐ remote sensing  
☐ environmental reconstruction (soils, floral, pollen)  
☐ dietary reconstruction (floral, faunal)  
☐ intensive lithic analysis (functional)  
☐ intensive lithic analysis (technological)  
☐ raw material sourcing  
☐ ceramic analysis (seriation)  
☐ ceramic analysis (functional)  
☐ blood residue  
☐ other \_\_\_\_\_

square meters of site tested: \_\_\_\_\_ sq. m

% of site area tested: \_\_\_\_\_ %

**Recommendations** (normally completed only after Phase II):

-- NR Eligibility recommendation

☐ eligible, ☐ ineligible, ☒ undetermined

-- reasons for determination (check as many as apply; expand as needed)

☐ eligible: Criterion A. Explain \_\_\_\_\_☐ eligible: Criterion B. Explain \_\_\_\_\_☐ eligible: Criterion C. Explain \_\_\_\_\_☐ eligible: Criterion D:☐ settlement patterning (intersite patterning)☐ intrasite artifact patterning☐ features☐ radiocarbon dating☐ organic preservation☐ evidence of culture change through time☐ stratified ☐ temporally discrete clusters☐ burials/human remains☐ technological☐ economics☐ ethnicity☐ dietary☐ other(specify): \_\_\_\_\_☐ ineligible☐ disturbed☐ ephemeral occupation☐ redundant information☐ undatable☐ other (specify): \_\_\_\_\_**E. Artifacts/Collections**☒ will be donated to the State Museum of Pennsylvania☐ gift agreement from private owner enclosed**- or -**☐ transfer of responsibility from State Agency enclosed☐ election of repository from Federal Agency enclosed☒ artifacts washed/marked/cataloged following State  
Museum guidelines

-- collection will be submitted by \_\_\_\_\_(date)

☐ will be donated to other approved repository ( **this option must be negotiated with the BHP and State Museum or stated as stipulation in MOA**)

☐ curation agreement enclosed

☐ artifacts washed/marked/cataloged following host guidelines

-- collection will be submitted by \_\_\_\_\_(date)

☐ will be retained by land owner (☐ whole or ☐ partial collection)

☐ expanded documentation enclosed for items retained

☐ proof enclosed that owner was notified of the option to

donate the collection to the State Museum and chose to retain the collection:

☐ letter from owner indicating desire to retain collection

- or -

☐ agency or representative discussed donation option with owner on \_\_\_\_\_(date)

- and -

☐ copy of letter and certified letter receipt indicating that the owner was offered this option in writing.



# FINDING OF NO ADVERSE EFFECT DOCUMENTATION

## DISPOSAL OF EXCESS FEDERAL PROPERTY DASHIELDS LOCKS AND DAM ALLEGHENY COUNTY, PENNSYLVANIA

### 1. PROJECT DESCRIPTION.

The Pittsburgh District, US Army Corps of Engineers (District), proposes to dispose as excess property about 0.58 acres of land in the vicinity of Dashields Locks and Dam on the Ohio River, Allegheny County, Pennsylvania (Exhibit 1). This land was part of a larger 2.59-acre parcel formerly acquired around 1933 for construction of the locktenders' dwellings. These dwellings and about two acres of land were excessed in 1973 to the Township of Crescent. The 0.58-acre parcel is situated between the excessed land and the Township's sewage treatment plant. Although originally retained for District use, primarily project parking and access, the recent construction of a permanent access road to the project has made this parcel excess to project needs. Crescent Township has expressed the desire to acquire this parcel in fee.

### 2. HISTORIC PROPERTIES DESCRIPTION.

The property has no known historic properties. The locktenders' dwellings and garage, built in 1933, were excessed with the two-acre parcel in 1973 and razed by the Township to create a baseball field. The 0.58-acre parcel, now occupied by a parking area and the ballfield's outfield, was formerly the dwellings' vegetable garden, and has no historic archeological potential associated with our navigation system (Exhibit 2). However, any earlier historic and prehistoric archeological potential of this parcel has not been evaluated through field testing. Despite surface disturbances, there is a high archeological potential for buried deposits due to its situation along the Ohio River.

### 3. HISTORIC PROPERTIES IDENTIFICATION.

Efforts to identify historic properties consisted of a search of District records for Dashields Locks and Dam, archeological site files, and consultation with the Pennsylvania Bureau for Historic Preservation. Due to the small acreage involved, the potential high cost and disturbance of surveying for deeply buried deposits, the District opted to pursue historic preservation covenants rather than total identification and evaluation of historic properties.

### 4. APPLICATION OF CRITERIA OF EFFECT.

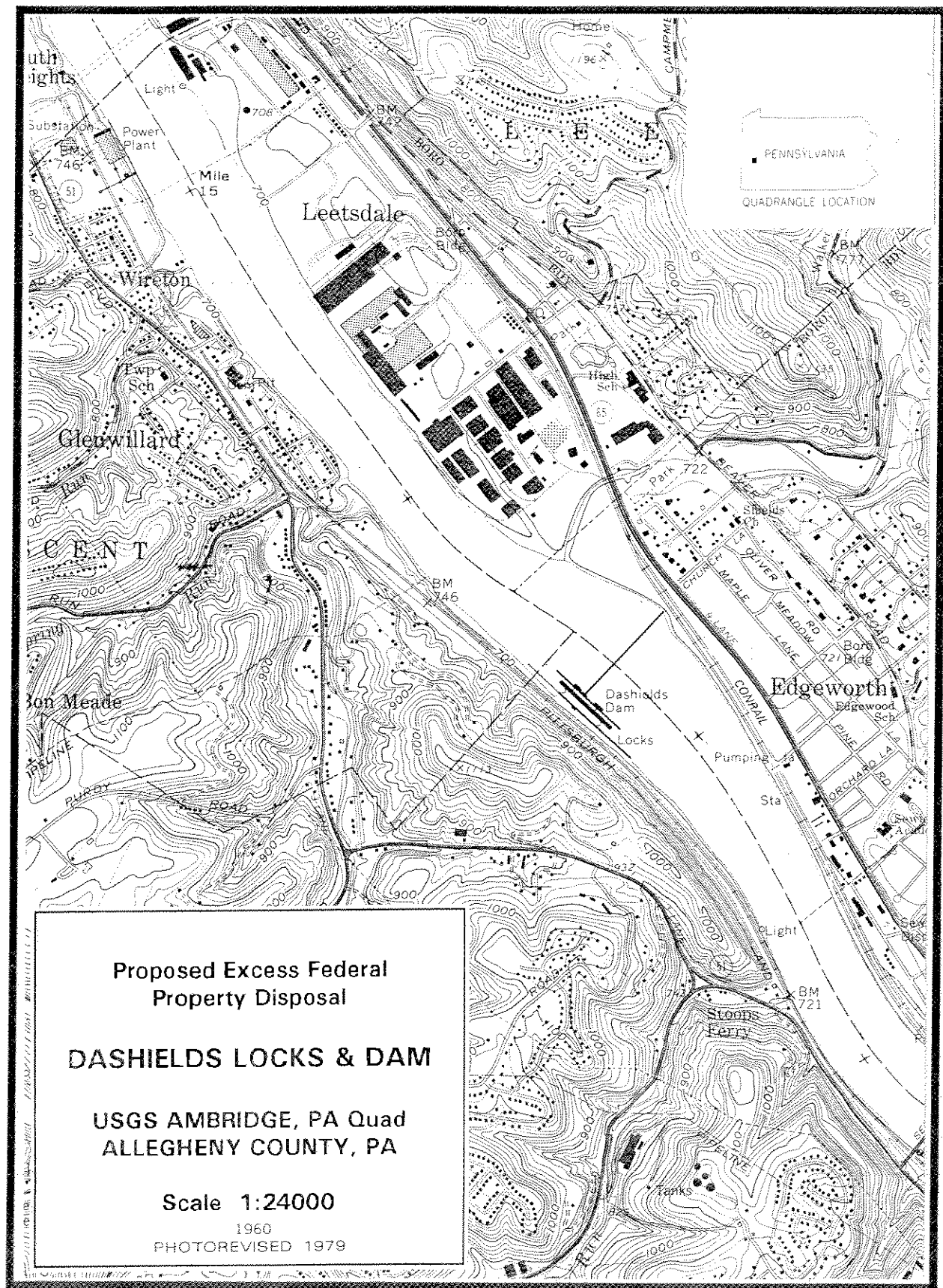
Under 36 CFR 800.9 (c)(3), the excessing of the subject parcel will have no adverse effect on historic properties as the proposed historic preservation covenants will provide adequate restrictions or conditions in the deed transfer to insure preservation of the property's significant historic features. The proposed covenants (Exhibit 3) were developed using the guidance in the Council's *PREPARING AGREEMENT DOCUMENTS: How to*

*Write Determinations of No Adverse Effect, Memoranda of Agreement, and Programmatic Agreements Under 36 CFR Part 800, with little modification.*

5. VIEWS OF THE STATE HISTORIC PRESERVATION OFFICER AND OTHERS.

The District consulted with the Pennsylvania Bureau for Historic Preservation in the identification process and in development of the historic preservation covenants. They have concurred with the use of the proposed covenants and in the no adverse effect determination (Exhibit 4).

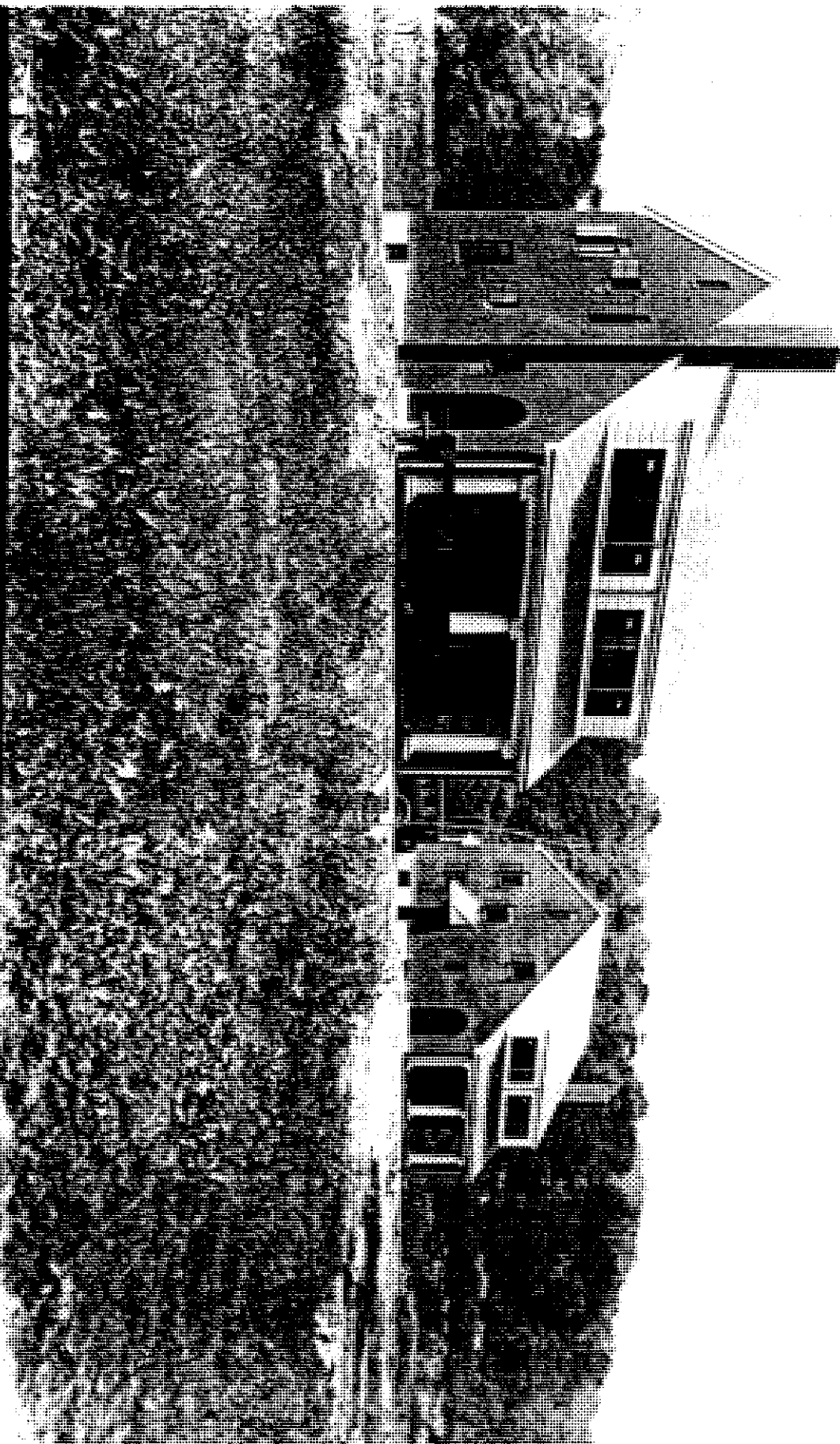
Pittsburgh District  
US Army Corps of Engineers  
29 September 1994



IN 1 SHEET  
U.S. ENGINEER OFFICE, PITTSBURGH, PA.  
MARCH 9, 1933.  
SUBMITTED BY: APPROVED BY:  
\_\_\_\_\_  
PRINCIPAL ENGINEER MAJOR, CORPS OF ENGINEERS.  
DRAWN BY: G.H.G. TRACED BY: G.H.G. CHECKED BY: M.L.K.  
CALCULATIONS AND DRAFTING SUPERVISED BY: H.C. DOVERSPIKE, ASS'T ENG'R  
FILE NO. ORD 14-4C





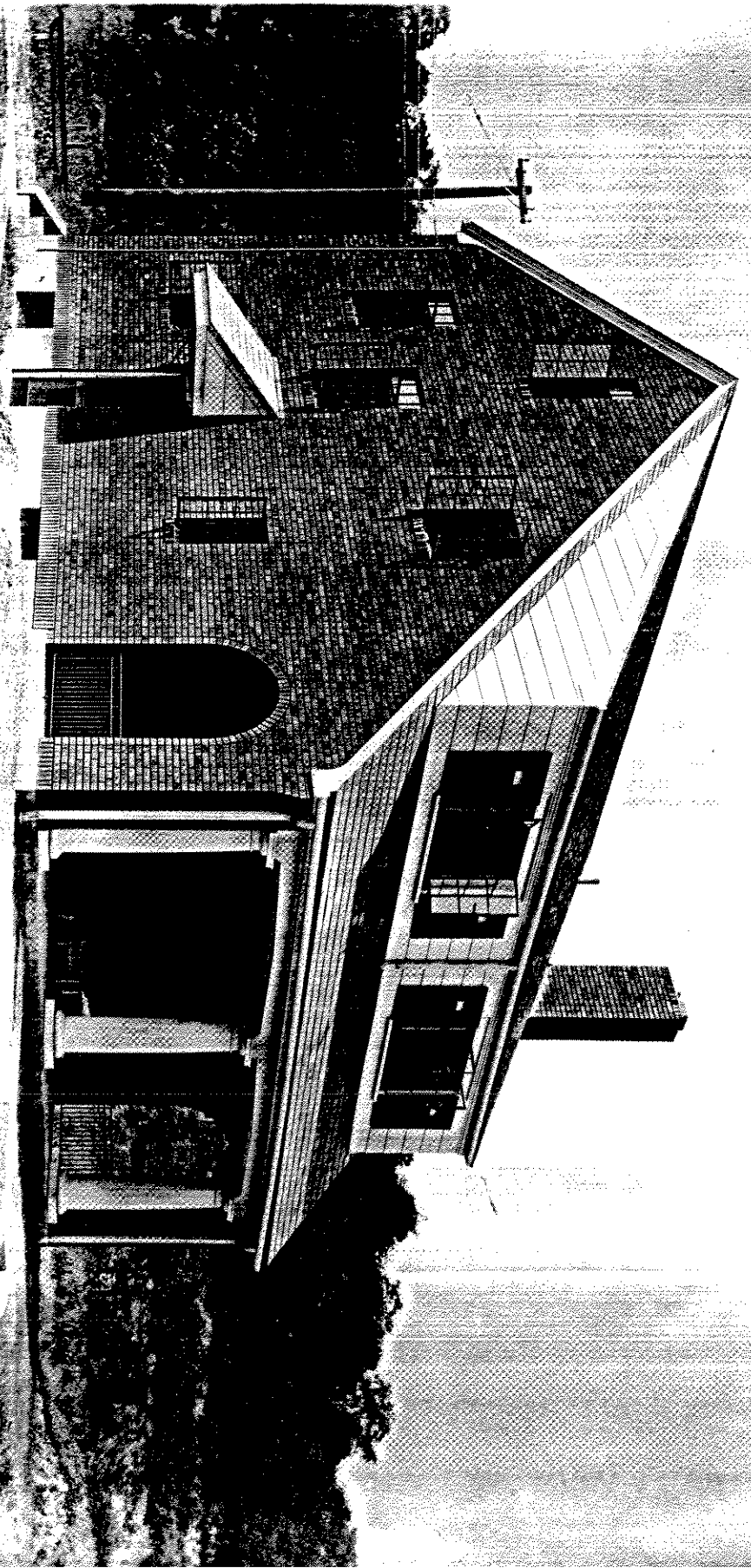


THE HOUSE OF THE FUTURE

THE HOUSE OF THE FUTURE

THE HOUSE OF THE FUTURE

1967



7100 Dosh Rd. Dosh

Lockwood's Valsco

15 E O Dosh Dr. Dosh Pa

7220

**APPENDIX B**  
**PENNSYLVANIA ARCHAEOLOGICAL SITE SURVEY FORMS**



# PENNSYLVANIA ARCHAEOLOGICAL SITE SURVEY

PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

## Identification and Location

SITE NAME Dashields Dam SITE NUMBER 36AL0600 UPDATE? Y☒ / N☐  
 PUBLISHED REFERENCES (Including compliance reports.) ER# 1997-1617-042-F  
 COUNTY Allegheny TWP. Moon NEAREST TOWN Glenwillard

## Site Characteristics

SITE AREA 1800 SQUARE METERS BASIS: ☐ COMPUTED ON THE GROUND OR ☒ COMPUTED ON MAP

STRATIFIED? ☐ UNKNOWN ☐ NO  
☒ YES : ☐ TOP STRATUM VISIBLE OR ☒ BURIED UNDER STERILE

SITE DISCOVERY METHOD: (check primary one only) ☐ Previously Recorded (update)  

<input type="checkbox"/> Unknown	<input type="checkbox"/> Auger probing
<input type="checkbox"/> Collector interview	<input checked="" type="checkbox"/> Shovel testing
<input type="checkbox"/> Collector interview with field check	<input type="checkbox"/> Systematic test units
<input type="checkbox"/> Non-systematic surface survey	<input type="checkbox"/> Extensive excavation
<input type="checkbox"/> Systematic surface survey	
<input type="checkbox"/> Systematic shovel testing	
<input type="checkbox"/> Remote sensing	

POTENTIAL FOR ORGANIC PRESERVATION: (check one)  
☒ Unknown  
☐ None  
☐ Low potential for organic preservation  
☐ Conditions favorable for organic preservation, none documented  
☐ Organic material recovered, unknown quality of preservation  
☐ Organic material recovered, poor quality of preservation  
☐ Organic material recovered, good quality of preservation

SITE TYPE:

### Prehistoric

- ☐ Unknown function surface scatter less than 20m radius
- ☐ Open habitation, prehistoric
- ☐ Rockshelter/Cave
- ☐ Quarry
- ☒ Lithic Reduction
- ☐ Village (including historic Indian)
- ☐ Shell Midden
- ☐ Earthwork
- ☐ Petroglyph/Pictograph
- ☐ Burial Mound
- ☐ Cemetery
- ☐ Other specialized aboriginal site
- ☐ Isolated flute point locus

- ☐ Isolated find (diagnostic artifact)
- ☐ Paleontological site
- ☐ Path

### Historic

- ☐ Historic and Prehistoric
- ☒ Domestic Site
- ☐ Military Site
- ☐ Industrial Site
- ☐ Shipwreck Site
- ☐ Commercial Site
- ☐ Religious Site
- ☐ Unknown/other/multiple types
- ☐ Farmstead

**CHRONOLOGY** (check all that apply)

Prehistoric

- |   |  |
|---|--|
| <input type="checkbox"/> Unknown Prehistoric  | <input type="checkbox"/> Transitional Tradition  |
| <input type="checkbox"/> Paleoindian  | <input type="checkbox"/> Woodland  |
| <input type="checkbox"/> Early <input type="checkbox"/> Middle <input type="checkbox"/> Late            | <input type="checkbox"/> Early <input type="checkbox"/> Middle <input type="checkbox"/> Late |
| <input checked="" type="checkbox"/> Archaic   | <input type="checkbox"/> Proto Historic  |
| <input type="checkbox"/> Early <input type="checkbox"/> Middle <input checked="" type="checkbox"/> Late |  |

Historic

- |   |  |
|---|--|
| <input type="checkbox"/> Unknown Historic                             | <input type="checkbox"/> 1800-1900   |
| <input type="checkbox"/> Contact-Historic                             | <input type="checkbox"/> 1800-1825 <input type="checkbox"/> 1825-1850            |
| <input type="checkbox"/> 1550-1600                                    | <input type="checkbox"/> 1850-1875 <input type="checkbox"/> 1875-1900            |
| <input type="checkbox"/> 1600-1650                                    | <input checked="" type="checkbox"/> 1900-  |
| <input type="checkbox"/> 1650-1700                                    | <input type="checkbox"/> 1900-1925 <input checked="" type="checkbox"/> 1925-1950 |
| <input type="checkbox"/> 1700-1800                                    | <input checked="" type="checkbox"/> 1950-1975 <input type="checkbox"/> 1975+     |
| <input type="checkbox"/> 1700-1725 <input type="checkbox"/> 1725-1750 |  |
| <input type="checkbox"/> 1750-1775 <input type="checkbox"/> 1775-1800 |  |

**BASIS FOR CHRONOLOGICAL INTERPRETATION** (check all that apply):

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Diagnostic lithic artifacts | <input checked="" type="checkbox"/> Historical Documentation |
| <input type="checkbox"/> Ceramic types                          | <input type="checkbox"/> Radio Carbon Dates (list below)     |

RADIO CARBON DATES \_\_\_\_\_ ± \_\_\_\_\_  
 \_\_\_\_\_ ± \_\_\_\_\_

FEATURES? ☒ NONE FOUND ☐ YES (identify below) If count is not known, use a "P" for present.

Prehistoric

Quantity	Prehistoric Features
	Present, Prehistoric
	Bundle Burials
	Burial Mound
	Burials
	Burned Areas
	Cache Pits
	Circular Houses
	Cremation Burials
	Earthworks

Quantity	Prehistoric Features
	Extended Burials
	Fish Weir
	Flexed Burials
	Hearth/Thermal Feature
	House Pattern
	Longhouses
	Midden Areas
	Ossuary
	Other, Prehistoric _____

Quantity	Prehistoric Features
	Path
	Petroglyph/Pictograph
	Postmolds
	Quarry Pit
	Semi-Subterranean Structures (e.g. Keyhole Structures)
	Shell Heap
	Stockade
	Storage Pits/Trash Pits

Historic

Quantity	Historic Features
	Present, Historic
	Burial
	Canal Bed
	Canal Lock
	Canal Tunnel
	Cellar
	Cemetery

Quantity	Historic Features
	Cistern
	Dam
	Ditch
	Fenceline
	Flower Garden/Bed
	Fortification
	Foundation

Quantity	Historic Features
	Ice House
	Iron Furnace
	Kiln
	Midden
	Millrace
	Monument/Boundary Marker

Quantity	Historic Features
	Oil Well
	Other, Historic _____
	Oven
	Pipeline
	Pit
	Posthole/Postmold
	Privy

Quantity	Historic Features
	Quarry/Mine
	Railroad
	Road
	Root Cellar
	Shipwreck
	Springhouse/Springbox
	Standing Building or

Quantity	Historic Features
	Structure
	Still
	Vat
	Walk/Path
	Wall
	Water Well
	Wharf

## Artifacts (Complete inventories may be attached, but please complete the summaries below)

### ARTIFACT DATA RECOVERY METHOD:

- |   |   |
|---|---|
| <input type="checkbox"/> Non-provenienced   | <input type="checkbox"/> Controlled excavation  |
| <input type="checkbox"/> Surface collection not representative of all artifacts   | <input type="checkbox"/> Representative sample of all artifacts (tools and/or debitage, etc.) |
| <input type="checkbox"/> Non-controlled excavation (i.e. artifact location not mapped and/or not all artifacts collected) | <input type="checkbox"/> Representative sample of tools only                                  |
| <input type="checkbox"/> Controlled surface collection  | <input type="checkbox"/> Estimate based on surface collections and/or excavation              |
|   | <input type="checkbox"/> Estimate based on informant interview                                |

### LITHIC MATERIALS FOUND ON SITE:

Quantity	Material
	Argillite
	Chalcedony
11	Chert/Flint
	Crystal Quartz
	Diabase
	Diorite
	English Flint
	French Flint
	Granite

Quantity	Material
	Hematite
	Hornfels
	Ironstone
	Jasper
	Limestone/Dolomite
	Metabasalt/Greenstone
	Metasandstone
	Onondaga Chert
	Quartz

Quantity	Material
	Quartzite
	Rhyolite (Metarhyolite)
	Sandstone
	Shale
	Siltstone
	Slate
	Steatite
	Vanport Chert (Flint Ridge)
	Unidentified

ARTIFACT CATEGORIES (Use the comments section to list any artifacts not categorize in these tables. Include either exact quantities or relative as follows:

B	Less than 25
C	25 - 50
D	51 - 100

E	101 - 200
F	201 - 400
G	401 - 800

H	801 or More
I	Present, Quantity Unknown

J	Present, Common
---	-----------------

Prehistoric (Include quantity by material type if appropriate, using the LITHIC list above. Examples:

D	Stone Debitage	52 rhyolite / 26 chert
2	Grooved Axes	sandstone

Prehistoric Artifact Types	Material Type		Prehistoric Artifact Types	Material Type	
	Adzes			Antler & Bone Artifacts	

Prehistoric Artifact Types	Material Type		Prehistoric Artifact Types	Material Type	
	Bannerstones			Hoes	
	Celts			Human Bone	
	Ceramics (Prehistoric)			Netsinkers	
B	Chipped Stone Tools	1 projectile point base (Brewerton), 1 biface		Non-Artifactual Bone or Antler	
	Clay Pipes (Prehistoric)			Non-Artifactual Floral Remains	
	Cordage			Non-Artifactual Shell	
	Core			Pestles/Grinding/Pitted Stones	
	Fire Cracked Rock			Shell Artifacts	
	Gorget/Pendants/Non-Utilitarian Lithics			Steatite Bowls/Fragments	
	Grooved Axes		B	Stone Debitage	9 chert
	Ground & Polished Stone Tools			Stone Pipes	
	Hammerstones			Wooden Artifacts	

Historic (Include Quantities by Group as appropriate from table below):

Architectural	Farm Tools	Kitchen (Domestic)
Personal	Arms/Weapons	Industrial Tools

Examples:

D	Glass	50 Architectural / 29 Kitchen
G	Metal	Architectural

Quantity	Historic Artifact	Group
	Brick	
	Buttons	
3	Ceramics (Historic)	Kitchen
	Clay Pipes (Historic)	
	Coins	
	Glass	
	Glass Trade Beads	
	Gunflints	

Quantity	Historic Artifact	Group
	Jewelry	
	Metal	
	Non-diagnostic ceramics	
	Redware	
	Strike-a-Light	
	Textiles	
	Toys	

#### DIAGNOSTIC ARTIFACTS

**Prehistoric Projectile Points** (Include counts by material types, using the LITHIC list above. Examples:

7	Broadspears	5 rhyolite / 2 argillite
2	Lehigh/Snook Kill	chert

Quantity	Prehistoric Point Types	Material
-----	Paleoindian Points	-----
	Pre-Clovis	

Quantity	Prehistoric Point Types	Material
	Clovis	
	Mid-Paleo (Folsom)	



Quantity	Prehistoric Point Types	Material
	Late Paleo (Plano)	
	Hardaway-Dalton	
	Fluted Point	
-----	Early Archaic Points	-----
	Palmer	
	Kirk Corner-notched	
	St. Charles	
	Thebes	
	Charleston	
-----	Middle Archaic Points	-----
	Bifurcate Points	
	Middle Archaic Notched/Stemmed Points	
	MacCorkle	
	Saint Albans	
	LeCroy	
	Otter Creek	
	Kanawha	
	Kirk Stemmed	
-----	Late Archaic Points	-----
	Piedmont Tradition	
B	Laurentian Tradition	1 Brewerton projectile point base
	Steubenville	

Quantity	Prehistoric Point Types	Material
-----	Transitional Tradition	-----
	Koens Crispins/Savannah River	
	Broadspears	
	Lehigh/Snook Kill	
	Perkiomen	
	Susquehanna	
-----	Early Woodland Points	-----
	Adena (Stemmed)	
	Meadowood	
	Helgramite	
	Orient	
-----	Middle Woodland Points	-----
	Raccoon Notched	
	Snyders	
	Basal Notched	
	Jacks Reef	
	Fox Creek	
-----	Late Woodland Points	-----
	Triangles (Late Woodland)	
-----	Proto Historic Points	-----
	Triangles (Proto Historic)	

**Prehistoric Ceramic Types** (Include counts by temper types - if not implied in name - using the LITHIC list above. Additional options include “grit”, “grog” or “shell.”.)

Quantity	Prehistoric Ceramics	Temper
-----	Early Woodland Ceramics	-----
	Accokeek Ware	
	Adena Plain	
	Grit Tempered Flat Bottom	
	Half-Moon Cordmarked	
	Interior-Exterior Cordmarked Small Temper-Conical/Globular	
	Marcy Creek	
	Steatite Tempered	
	Vinette I (Interior-Exterior Cordmarked Large Temper-Conical/Globular)	
-----	Middle Woodland/Middle to Late Woodland Ohio Valley Ceramics	-----
	Abott Zoned	
	Grit Tempered Exterior Cordmarked-Conical/Globular	

Quantity	Prehistoric Ceramics	Temper
	Grit Tempered Net Impressed-Conical/Globular	
	Point Peninsula Series	
	Shell Tempered Net Impressed-Conical/Globular	
	Watson Cord Marked	
-----	Late Woodland Ceramics	-----
	Blue Rock Valanced	
	Chance Series	
	Chautauqua Cordmarked	
	Clemsons Island/Princess Point Series	
	Early Ontario Iroquois	
	Erie Series	
	Funk Incised	
	Keyser Cordmarked	
	Lancaster Incised	
	Mahoning Cord Marked	
	McFate Incised	

Quantity	Prehistoric Ceramics	Temper
	McFate/Quiggle Undifferentiated	
	Meade Island Series	
	Minguannan Series	
	Monongahela (Undifferentiated)	
	Monongahela Cordmarked-Late Woodland	
	Monongahela Incised	
	Monongahela Plain	
	Monongahela Somerset Phase	
	Oak Hill Series	
	Overpeck	
	Owasco Series	
	Page Cordmarked	
	Potomac Creek Cord Impressed	
	Proto-Susquehannock	

Quantity	Prehistoric Ceramics	Temper
	Quiggle Incised	
	Richmond Incised	
	Schultz Incised	
	Shenks Ferry (Undifferentiated)	
	Shenks Ferry Cordmarked	
	Shenks Ferry Incised (Blue Rock Phase)	
	Shenks Ferry Incised (Stewart Phase)	
	Shepard Cordmarked	
	Strickler Cordmarked	
	Susquehannock (Undifferentiated)	
	Townsend	
	Tribal Series	
	Washington Boro Incised	
	Whittlesey	
	Wyoming Valley Series	

### Historic Ceramics

Quantity	Historic Ceramics
	American Stoneware (Blue and Gray)
	Basalt
	Chinese Porcelain
	Cream-Colored Ware
	Creamware
	Dry-Bodied (Engine Turned)
	English Brown Stoneware

Quantity	Historic Ceramics
	English Porcelain
	Fulham
	Ironstone
	Jackfield
	Nottingham
	Pearlware (All Decoration Types)
	Rhenish
	Rockingham

Quantity	Historic Ceramics
	Scratch Blue/Brown Salt-Glaze Stoneware
	Tin-Glazed Earthenware
	Whieldon
	White Salt-Glaze Stoneware
3	White Ware (Transitional)
	Yellowware

**Physical Data and Site Condition** Instructions available. Please fill out as much as is known, especially those items that are measured or observed on site.

On site SOIL ASSOCIATION Rainsboro Silt Loam SOIL MAPPING UNIT RaB

Most common other mapped SOIL UNIT(S) within 500 meters Gilpin-Upshur Complex (GQF) (may list two)

MAP ELEVATION (Site Elevation: 760 ft) \_\_\_\_\_ SLOPE PERCENTAGE 3%-8% SLOPE DIRECTION Northeast

SLOPE BASIS ☐ MEASURED ON SITE ☒ ESTIMATED FROM SOIL SURVEY OR MAP

BEDROCK Casselman Most predominant other BEDROCK(S) within 5 km Vanport and Glenshaw (may list two)

PHYSIOGRAPHIC PROVINCE Pittsburgh Low Plateau Section (If within 10 km of a Physiographic Province boundary, name the neighboring PHYSIOGRAPHIC PROVINCE \_\_\_\_\_)

TOPOGRAPHIC SETTING (check the one that best describes the setting):

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Island                                       | <input type="checkbox"/> Lower Hillslope                       | <input type="checkbox"/> Hill/Ridge Toe |
| <input type="checkbox"/> Beach  | <input type="checkbox"/> Middle Hillslope                      | <input type="checkbox"/> Upland Flat    |
| <input type="checkbox"/> Floodplain                                   | <input type="checkbox"/> Upper Hillslope                       | <input type="checkbox"/> Hilltop        |
| <input type="checkbox"/> Rise in Floodplain                           | <input type="checkbox"/> Stream Bench (along low order stream) | <input type="checkbox"/> Ridge Top      |
| <input checked="" type="checkbox"/> Terrace (Pleistocene along river) |  | <input type="checkbox"/> Saddle         |

IMMEDIATE VEGETATION grasses PERCENTAGE OF SITE STILL INTACT Unknown

PRIMARY DISTURBANCE baseball field POSSIBILITY OF DESTRUCTION Unknown

**Water Drainage Area Information** Instructions available. Please fill out as much as is known, especially those items that are measured or observed on site. Distance to water is particularly critical.

SUBBASIN Ohio River WATERSHED D MAJOR STREAM Ohio River MINOR STREAM Tributary of Flaugherty Run

NEAREST WATER: Distance 45.7 m Elevation 750ft Direction Northeast Order 9 Type Perennial River

2<sup>ND</sup> NEAREST WATER: Distance 153.6 m Elevation 698ft Direction Northwest Order 2 Type Perennial Stream

NEAREST PERRENIAL STREAM CONFLUENCE:

Distance 238.4 m Elevation 698 ft Direction North northwest Order below confluence 9

RELATIONSHIP OF FIRST AND SECOND WATER (check one)

- ☐ Do not represent a stream confluence.
- ☒ Site is located upstream from the confluence and between the 2 water sources.
- ☐ Site is located upstream from the confluence, but not between the 2 water sources.
- ☐ Site is located downstream from the confluence.
- ☐ None of the above apply.

**COMMENTS** Dashields Dam is a prehistoric lithic scatter, possibly dating to the Late Archaic period and historic domestic remains associated with two former locktenders houses. This site is capped by mixed fill (CA horizon) with historic artifacts in both the CA horizon and Ab horizon. The prehistoric component is restricted to the Ab horizon. The originin of historic artifacts in the CA horizon are unknown but may be associated with the historic component This site, located on a bluff overlooking the Ohio River, is situated within a playground and extends beneath a baseball field.

**ATTACH PHOTOGRAPHS OR DRAWINGS OF DIAGNOSTIC ARTIFACTS WITH SCALE.  
IDENTIFY LITHIC MATERIAL TO ARTIFACTS USING DESCRIPTION OR KEY.**

**GENERAL SITE PHOTOGRAPHS OR EXCAVATION PHOTOGRAPHS OR DRAWINGS MAY ALSO BE INCLUDED.**

*We encourage the inclusion of as many illustrations as possible.*





**Photograph 1 Crew digging Shovel Test Pits in baseball diamond**



**Photograph 2 Typical Shovel Test Pit**

**ADMINISTRATIVE INFORMATION (CONFIDENTIAL ITEMS HIGHLIGHTED)**

7.5 QUAD NAME Ambridge

(Measure in centimeters from the bottom printed edge upward, and the right printed edge across)

U.T.M. COORDINATES: ZONE 17 NORTHING 05 66 332 EASTING 44 89 679

**ATTACH SEPARATE SKETCH MAP OF SITE AND/OR PORTION OF 7.5 MIN USGS MAP WITH SITE BOUNDARIES INDICATED.**

OWNER Glenwillard Boat Club, the United States of America, and the Township of Crescent ADDRESS \_\_\_\_\_

TAX PARCEL ID \_\_\_\_\_ TAX MAP DATE \_\_\_\_\_

☒ PRIVATE LANDOWNER ☐ PUBLIC LANDOWNER - ☒ FEDERAL ☐ STATE ☒ LOCAL

COLLECTION LOCATIONS Temporary: GAI Consultants, 385 East Waterfront Drive, Homestead PA, 15120  
Permanent: Pennsylvania Bureau for Historic Preservation, Commonwealth Keystone Building, 2<sup>nd</sup> Floor, 400 North Street, Harrisburg PA

INFORMANTS \_\_\_\_\_

RECORDING REASON

- |  |   |
|--|---|
| <input type="checkbox"/> Informant Interview/Amateur Survey            | <input type="checkbox"/> Non-PHMC institution affiliated research             |
| <input checked="" type="checkbox"/> State or Federal Compliance Survey | <input type="checkbox"/> PHMC Research  |
| <input type="checkbox"/> PHMC Grant                                    | <input type="checkbox"/> Other (Explain in 'Comments' section at end of form) |

CRITERIA FOR NATIONAL REGISTER INCLUSION \_\_\_\_\_

SUBMITTED BY GAI Consultants, Inc. ADDRESS 385 East Waterfront Drive

CITY Homestead STATE PA DATE 09/14/2009

PHONE NUMBER 412-476-2000 x1205 EMAIL ADDRESS l.frye@gaiconsultants.com

S.P.A. CHAPTER AFFILIATION \_\_\_\_\_

INSTITUTIONAL AFFILIATION \_\_\_\_\_

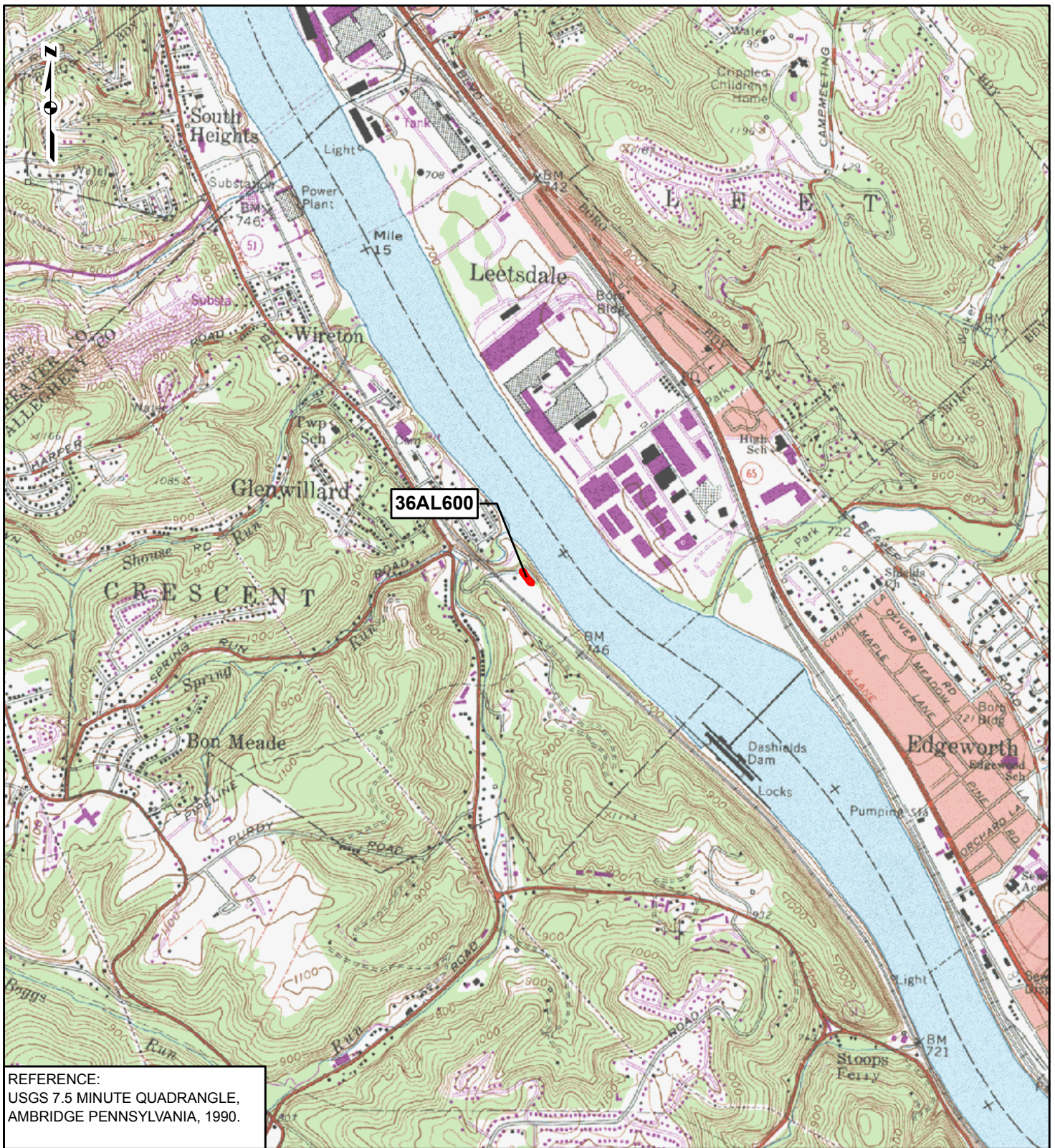
ADMINISTRATIVE COMMENTS \_\_\_\_\_

**Remember!** Ask the landowner's permission before you collect artifacts on private property. It is a violation of state law to collect artifacts on state lands and a violation of federal law to collect artifacts on federal lands.

Completed forms should be sent to:

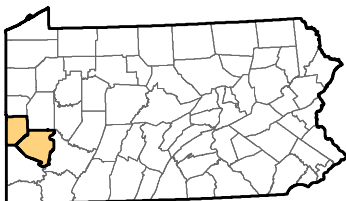
Bureau for Historic Preservation  
Commonwealth Keystone Bldg, 2<sup>nd</sup> Floor  
400 North Street  
Harrisburg, PA 17120-0093





REFERENCE:  
USGS 7.5 MINUTE QUADRANGLE,  
AMBRIDGE PENNSYLVANIA, 1990.

#### PROJECT LOCATION



ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

#### LEGEND

ARCHAEOLOGICAL SITE BOUNDARY

0 1,000 2,000 4,000  
Feet

#### SITE 36AL600 LOCATION MAP



UPPER OHIO  
NAVIGATION STUDY  
AEROSTAR  
ENVIRONMENTAL SERVICES, INC.



DRAWN BY: AJW  
CHECKED: LAF

DATE: 01/07/2010  
APPROVED: LAF



**PENNSYLVANIA ARCHAEOLOGICAL SITE SURVEY**  
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

**Identification and Location**

SITE NAME Montgomery Dam SITE NUMBER 36BV0131 UPDATE? Y☒ / N☐  
PUBLISHED REFERENCES (Including compliance reports.) ER# 1997-1617-042-F  
COUNTY Beaver TWP. Potter NEAREST TOWN Monaca

**Site Characteristics**

SITE AREA 7296 SQUARE METERS BASIS: ☒ COMPUTED ON THE GROUND OR ☐ COMPUTED ON MAP

STRATIFIED? ☒ UNKNOWN ☐ NO  
☐ YES : ☐ TOP STRATUM VISIBLE OR ☐ BURIED UNDER STERILE

SITE DISCOVERY METHOD: (check primary one only) ☒ Previously Recorded (update)  
☐ Unknown ☐ Auger probing  
☐ Collector interview ☒ Shovel testing  
☐ Collector interview with field check ☐ Systematic test units  
☐ Non-systematic surface survey ☐ Extensive excavation  
☐ Systematic surface survey  
☐ Systematic shovel testing  
☐ Remote sensing

POTENTIAL FOR ORGANIC PRESERVATION: (check one)  
☒ Unknown  
☐ None  
☐ Low potential for organic preservation  
☐ Conditions favorable for organic preservation, none documented  
☐ Organic material recovered, unknown quality of preservation  
☐ Organic material recovered, poor quality of preservation  
☐ Organic material recovered, good quality of preservation

SITE TYPE:

Prehistoric

- ☐ Unknown function surface scatter less than 20m radius  
☐ Open habitation, prehistoric  
☐ Rockshelter/Cave  
☐ Quarry  
☒ Lithic Reduction  
☐ Village (including historic Indian)  
☐ Shell Midden  
☐ Earthwork  
☐ Petroglyph/Pictograph  
☐ Burial Mound  
☐ Cemetery  
☐ Other specialized aboriginal site  
☐ Isolated flute point locus

- ☐ Isolated find (diagnostic artifact)  
☐ Paleontological site  
☐ Path

Historic

- ☐ Historic and Prehistoric  
☒ Domestic Site  
☐ Military Site  
☐ Industrial Site  
☐ Shipwreck Site  
☐ Commercial Site  
☐ Religious Site  
☐ Unknown/other/multiple types  
☐ Farmstead

CHRONOLOGY (check all that apply)

Prehistoric

- ☒ Unknown Prehistoric  
☐ Paleoindian  
☐ Early ☐ Middle ☐ Late  
☐ Archaic  
☐ Early ☐ Middle ☐ Late  
☐ Transitional Tradition  
☐ Woodland  
☐ Early ☐ Middle ☐ Late  
☐ Proto Historic

Historic

- ☐ Unknown Historic  
☐ Contact-Historic  
☐ 1550-1600  
☐ 1600-1650  
☐ 1650-1700  
☐ 1700-1800  
☐ 1700-1725 ☐ 1725-1750  
☐ 1750-1775 ☐ 1775-1800  
☒ 1800-1900  
☐ 1800-1825 ☐ 1825-1850  
☐ 1850-1875 ☒ 1875-1900  
☒ 1900-  
☒ 1900-1925 ☒ 1925-1950  
☐ 1950-1975 ☐ 1975+

BASIS FOR CHRONOLOGICAL INTERPRETATION (check all that apply):

- ☐ Diagnostic lithic artifacts  
☐ Ceramic types  
☒ Historical Documentation  
☐ Radio Carbon Dates (list below)

RADIO CARBON DATES \_\_\_\_\_ ± \_\_\_\_\_  
 \_\_\_\_\_ ± \_\_\_\_\_

FEATURES? ☐ NONE FOUND ☒ YES (identify below) If count is not known, use a "P" for present.

Prehistoric

Quantity	Prehistoric Features
	Present, Prehistoric
	Bundle Burials
	Burial Mound
	Burials
	Burned Areas
	Cache Pits
	Circular Houses
	Cremation Burials
	Earthworks

Quantity	Prehistoric Features
	Extended Burials
	Fish Weir
	Flexed Burials
	Hearth/Thermal Feature
	House Pattern
	Longhouses
	Midden Areas
	Ossuary
	Other, Prehistoric _____

Quantity	Prehistoric Features
	Path
	Petroglyph/Pictograph
	Postmolds
	Quarry Pit
	Semi-Subterranean Structures (e.g. Keyhole Structures)
	Shell Heap
	Stockade
	Storage Pits/Trash Pits

Historic

Quantity	Historic Features
	Present, Historic
	Burial
	Canal Bed
	Canal Lock
	Canal Tunnel
	Cellar

Quantity	Historic Features
	Cemetery
	Cistern
	Dam
	Ditch
	Fenceline
	Flower Garden/Bed

Quantity	Historic Features
	Fortification
2	Foundation
	Ice House
	Iron Furnace
	Kiln
	Midden



Quantity	Historic Features
	Millrace
	Monument/Boundary Marker
	Oil Well
	Other, Historic _____
	Oven
	Pipeline
	Pit

Quantity	Historic Features
	Posthole/Postmold
	Privy
	Quarry/Mine
	Railroad
	Road
	Root Cellar
	Shipwreck
	Springhouse/Springbox

Quantity	Historic Features
	Standing Building or Structure
	Still
	Vat
	Walk/Path
	Wall
	Water Well
	Wharf

## Artifacts (Complete inventories may be attached, but please complete the summaries below)

### ARTIFACT DATA RECOVERY METHOD:

- |   |   |
|---|---|
| <input type="checkbox"/> Non-provenienced   | <input type="checkbox"/> Controlled excavation  |
| <input type="checkbox"/> Surface collection not representative of all artifacts   | <input type="checkbox"/> Representative sample of all artifacts (tools and/or debitage, etc.) |
| <input type="checkbox"/> Non-controlled excavation (i.e. artifact location not mapped and/or not all artifacts collected) | <input type="checkbox"/> Representative sample of tools only                                  |
| <input type="checkbox"/> Controlled surface collection  | <input type="checkbox"/> Estimate based on surface collections and/or excavation              |
|   | <input type="checkbox"/> Estimate based on informant interview                                |

### LITHIC MATERIALS FOUND ON SITE:

Quantity	Material
	Argillite
	Chalcedony
1	Chert/Flint
	Crystal Quartz
	Diabase
	Diorite
	English Flint
	French Flint
	Granite

Quantity	Material
	Hematite
	Hornfels
	Ironstone
	Jasper
	Limestone/Dolomite
	Metabasalt/Greenstone
	Metasandstone
	Onondaga Chert
	Quartz

Quantity	Material
	Quartzite
	Rhyolite (Metarhyolite)
	Sandstone
	Shale
	Siltstone
	Slate
	Steatite
	Vanport Chert (Flint Ridge)
	Unidentified

ARTIFACT CATEGORIES (Use the comments section to list any artifacts not categorize in these tables. Include either exact quantities or relative as follows:

B	Less than 25
C	25 - 50
D	51 - 100

E	101 - 200
F	201 - 400
G	401 - 800

H	801 or More
I	Present, Quantity Unknown

J	Present, Common
---	-----------------

Prehistoric (Include quantity by material type if appropriate, using the LITHIC list above. Examples:

D	Stone Debitage	52 rhyolite / 26 chert
2	Grooved Axes	sandstone

Prehistoric Artifact Types	Material Type		

Prehistoric Artifact Types	Material Type		Prehistoric Artifact Types	Material Type	
	Adzes			Hoes	
	Antler & Bone Artifacts			Human Bone	
	Bannerstones			Netsinkers	
	Celts			Non-Artifactual Bone or Antler	
	Ceramics (Prehistoric)			Non-Artifactual Floral Remains	
	Chipped Stone Tools			Non-Artifactual Shell	
	Clay Pipes (Prehistoric)			Pestles/Grinding/Pitted Stones	
	Cordage			Shell Artifacts	
	Core			Steatite Bowls/Fragments	
	Fire Cracked Rock			Stone Debitage	1 chert
	Gorgets/Pendants/Non-Utilitarian Lithics		B	Stone Pipes	
	Grooved Axes			Wooden Artifacts	
	Ground & Polished Stone Tools				
	Hammerstones				

Historic (Include Quantities by Group as appropriate from table below):

Architectural	Farm Tools	Kitchen (Domestic)
Personal	Arms/Weapons	Industrial Tools

Examples:

D	Glass	50 Architectural / 29 Kitchen
G	Metal	Architectural

Quantity	Historic Artifact	Group
	Brick	
	Buttons	
B	Ceramics (Historic)	Kitchen
	Clay Pipes (Historic)	
	Coins	
B	Glass	Kitchen/Architecture
	Glass Trade Beads	
	Gunflints	

Quantity	Historic Artifact	Group
	Jewelry	
B	Metal	4 Architectural
B	Non-diagnostic ceramics	
	Redware	
	Strike-a-Light	
	Textiles	
	Toys	

#### DIAGNOSTIC ARTIFACTS

**Prehistoric Projectile Points** (Include counts by material types, using the LITHIC list above. Examples:

7	Broadspears	5 rhyolite / 2 argillite
2	Lehigh/Snook Kill	chert

Quantity	Prehistoric Point Types	Material
-----	Paleoindian Points	-----

Quantity	Prehistoric Point Types	Material
	Pre-Clovis	

Quantity	Prehistoric Point Types	Material
	Clovis	
	Mid-Paleo (Folsom)	
	Late Paleo (Plano)	
	Hardaway-Dalton	
	Fluted Point	
-----	Early Archaic Points	-----
	Palmer	
	Kirk Corner-notched	
	St. Charles	
	Thebes	
	Charleston	
-----	Middle Archaic Points	-----
	Bifurcate Points	
	Middle Archaic Notched/Stemmed Points	
	MacCorkle	
	Saint Albans	
	LeCroy	
	Otter Creek	
	Kanawha	
	Kirk Stemmed	
-----	Late Archaic Points	-----
	Piedmont Tradition	
	Laurentian Tradition	

Quantity	Prehistoric Point Types	Material
	Steubenville	
-----	Transitional Tradition	-----
	Koens Crispins/Savannah River	
	Broadspears	
	Lehigh/Snook Kill	
	Perkiomen	
	Susquehanna	
-----	Early Woodland Points	-----
	Adena (Stemmed)	
	Meadowood	
	Helgramite	
	Orient	
-----	Middle Woodland Points	-----
	Raccoon Notched	
	Snyders	
	Basal Notched	
	Jacks Reef	
	Fox Creek	
-----	Late Woodland Points	-----
	Triangles (Late Woodland)	
-----	Proto Historic Points	-----
	Triangles (Proto Historic)	

**Prehistoric Ceramic Types** (Include counts by temper types - if not implied in name - using the LITHIC list above. Additional options include “grit”, “grog” or “shell.”.)

Quantity	Prehistoric Ceramics	Temper
-----	Early Woodland Ceramics	-----
	Accokeek Ware	
	Adena Plain	
	Grit Tempered Flat Bottom	
	Half-Moon Cordmarked	
	Interior-Exterior Cordmarked Small Temper-Conical/Globular	
	Marcy Creek	
	Steatite Tempered	
	Vinette I (Interior-Exterior Cordmarked Large Temper-Conical/Globular)	
-----	Middle Woodland/Middle to Late Woodland Ohio Valley Ceramics	-----
	Abott Zoned	
	Grit Tempered Exterior Cordmarked-Conical/Globular	

Quantity	Prehistoric Ceramics	Temper
	Grit Tempered Net Impressed-Conical/Globular	
	Point Peninsula Series	
	Shell Tempered Net Impressed-Conical/Globular	
	Watson Cord Marked	
-----	Late Woodland Ceramics	-----
	Blue Rock Valanced	
	Chance Series	
	Chautauqua Cordmarked	
	Clemsons Island/Princess Point Series	
	Early Ontario Iroquois	
	Erie Series	
	Funk Incised	
	Keyser Cordmarked	
	Lancaster Incised	
	Mahoning Cord Marked	

Quantity	Prehistoric Ceramics	Temper
	McFate Incised	
	McFate/Quiggle Undifferentiated	
	Meade Island Series	
	Minguannan Series	
	Monongahela (Undifferentiated)	
	Monongahela Cordmarked-Late Woodland	
	Monongahela Incised	
	Monongahela Plain	
	Monongahela Somerset Phase	
	Oak Hill Series	
	Overpeck	
	Owasco Series	
	Page Cordmarked	
	Potomac Creek Cord Impressed	
	Proto-Susquehannock	

Quantity	Prehistoric Ceramics	Temper
	Quiggle Incised	
	Richmond Incised	
	Schultz Incised	
	Shenks Ferry (Undifferentiated)	
	Shenks Ferry Cordmarked	
	Shenks Ferry Incised (Blue Rock Phase)	
	Shenks Ferry Incised (Stewart Phase)	
	Shepard Cordmarked	
	Strickler Cordmarked	
	Susquehannock (Undifferentiated)	
	Townsend	
	Tribal Series	
	Washington Boro Incised	
	Whittlesey	
	Wyoming Valley Series	

#### Historic Ceramics

Quantity	Historic Ceramics
	American Stoneware (Blue and Gray)
	Basalt
	Chinese Porcelain
	Cream-Colored Ware
	Creamware
	Dry-Bodied (Engine Turned)
	English Brown Stoneware

Quantity	Historic Ceramics
	English Porcelain
	Fulham
1	Ironstone
	Jackfield
	Nottingham
	Pearlware (All Decoration Types)
	Rhenish
	Rockingham

Quantity	Historic Ceramics
	Scratch Blue/Brown Salt-Glaze Stoneware
	Tin-Glazed Earthenware
	Whieldon
	White Salt-Glaze Stoneware
	White Ware (Transitional)
1	Yellowware

**Physical Data and Site Condition** Instructions available. Please fill out as much as is known, especially those items that are measured or observed on site.

On site SOIL ASSOCIATION Conotton gravelly Loam SOIL MAPPING UNIT CoC

Most common other mapped SOIL UNIT(S) within 500 meters Weikert-Rock outcrop complex (WeF) (may list two)

MAP ELEVATION (Site Elevation: 765 ft) \_\_\_\_\_ SLOPE PERCENTAGE 8%-15% SLOPE DIRECTION North

SLOPE BASIS ☐ MEASURED ON SITE ☒ ESTIMATED FROM SOIL SURVEY OR MAP

BEDROCK Glenshaw Most predominant other BEDROCK(S) within 5 km Vanport and Casselman (may list two)

PHYSIOGRAPHIC PROVINCE Pittsburgh Low Plateau Section (If within 10 km of a Physiographic Province boundary, name the neighboring PHYSIOGRAPHIC PROVINCE \_\_\_\_\_)

TOPOGRAPHIC SETTING (check the one that best describes the setting):

- |                                     |   |   |
|-------------------------------------|---|---|
| <input type="checkbox"/> Island     | <input type="checkbox"/> Rise in Floodplain                           | <input type="checkbox"/> Middle Hillslope |
| <input type="checkbox"/> Beach      | <input checked="" type="checkbox"/> Terrace (Pleistocene along river) | <input type="checkbox"/> Upper Hillslope  |
| <input type="checkbox"/> Floodplain | <input type="checkbox"/> Lower Hillslope                              |   |

- |  |                                      |                                 |
|--|--------------------------------------|---------------------------------|
| <input type="checkbox"/> Stream Bench (along low order stream) | <input type="checkbox"/> Upland Flat | <input type="checkbox"/> Saddle |
| <input type="checkbox"/> Hill/Ridge Toe                        | <input type="checkbox"/> Hilltop     |                                 |
|  | <input type="checkbox"/> Ridge Top   |                                 |

IMMEDIATE VEGETATION Mixed Hardwoods and Low Lying Brush PERCENTAGE OF SITE STILL INTACT Unknown

PRIMARY DISTURBANCE Railroad & dam construction POSSIBILITY OF DESTRUCTION Unknown

**Water Drainage Area Information** Instructions available. Please fill out as much as is known, especially those items that are measured or observed on site. Distance to water is particularly critical.

SUBBASIN Ohio River WATERSHED D MAJOR STREAM Ohio River MINOR STREAM Squirrel Run

NEAREST WATER: Distance 60 m Elevation 680 ft Direction North Order 2 Type Perennial River

2<sup>ND</sup> NEAREST WATER: Distance 100 m Elevation 700 ft Direction West Order 1 Type Perennial Stream

NEAREST PERRENIAL STREAM CONFLUENCE:

Distance 395.0 m Elevation 666 ft Direction West Order below confluence 2

RELATIONSHIP OF FIRST AND SECOND WATER (check one)

- ☐ Do not represent a stream confluence.
- ☒ Site is located upstream from the confluence and between the 2 water sources.
- ☐ Site is located upstream from the confluence, but not between the 2 water sources.
- ☐ Site is located downstream from the confluence.
- ☐ None of the above apply.

**COMMENTS:** This is a low density prehistoric artifact scatter and historic domestic site found along an eroded terrace of the Ohio River. A stone foundation from the former ca.1870-1930s Kenyon-Emerick house was located on a small bench. An abandoned building (recorded on a PHRS form as Unnamed Garage) is nearby. A driveway runs past the garage towards the foundation. The artifact scatter is between the foundation and garage. The site is much smaller than that reported on the original site form by an avocational archaeologist. All artifacts were recovered within the Ap horizon. On a follow-up visit to the site, the garage was burned down and now represents a second foundation associated with the site.

**ATTACH PHOTOGRAPHS OR DRAWINGS OF DIAGNOSTIC ARTIFACTS WITH SCALE. IDENTIFY LITHIC MATERIAL TO ARTIFACTS USING DESCRIPTION OR KEY.**

**GENERAL SITE PHOTOGRAPHS OR EXCAVATION PHOTOGRAPHS OR DRAWINGS MAY ALSO BE INCLUDED.**

*We encourage the inclusion of as many illustrations as possible.*





**Photograph 1 Burned Unnamed Garage Area**



**Photograph 2 Intact Foundation Remnant of Former Kenyon-Emerick House**

**ADMINISTRATIVE INFORMATION (CONFIDENTIAL ITEMS HIGHLIGHTED)**

7.5 QUAD NAME Midland EDITION 1954 UP 10cm ACROSS 4cm

(Measure in centimeters from the bottom printed edge upward, and the right printed edge across)

U.T.M. COORDINATES: ZONE 17 NORTHING 4499795 EASTING 0552118

**ATTACH SEPARATE SKETCH MAP OF SITE AND/OR PORTION OF 7.5 MIN USGS MAP WITH SITE BOUNDARIES INDICATED.**

OWNER John P. and Jerome P. Oliver, and CSX Transportation, Inc. ADDRESS J. Oliver, 1768 N. Main St., Butler, PA; CSX Transportation, attn. Becky Snyder, 500 Water St. (C910), Jacksonville, FL 32202

TAX PARCEL ID TAX MAP DATE

☒ PRIVATE LANDOWNER ☐ PUBLIC LANDOWNER - ☐ FEDERAL ☐ STATE ☐ LOCAL

COLLECTION LOCATIONS Temporary: GAI Consultants, 385 East Waterfront Drive, Homestead PA, 15120  
Permanent: Pennsylvania Bureau for Historic Preservation, Commonwealth Keystone Building, 2<sup>nd</sup> Floor, 400 North Street, Harrisburg PA

INFORMANTS

RECORDING REASON

- |  |   |
|--|---|
| <input type="checkbox"/> Informant Interview/Amateur Survey            | <input type="checkbox"/> Non-PHMC institution affiliated research             |
| <input checked="" type="checkbox"/> State or Federal Compliance Survey | <input type="checkbox"/> PHMC Research  |
| <input type="checkbox"/> PHMC Grant                                    | <input type="checkbox"/> Other (Explain in 'Comments' section at end of form) |

CRITERIA FOR NATIONAL REGISTER INCLUSION

SUBMITTED BY GAI Consultants, Inc. ADDRESS 385 East Waterfront Drive

CITY Homestead STATE PA DATE 09/14/2009

PHONE NUMBER 412-476-2000 x1205 EMAIL ADDRESS l.frye@gaiconsultants.com

S.P.A. CHAPTER AFFILIATION

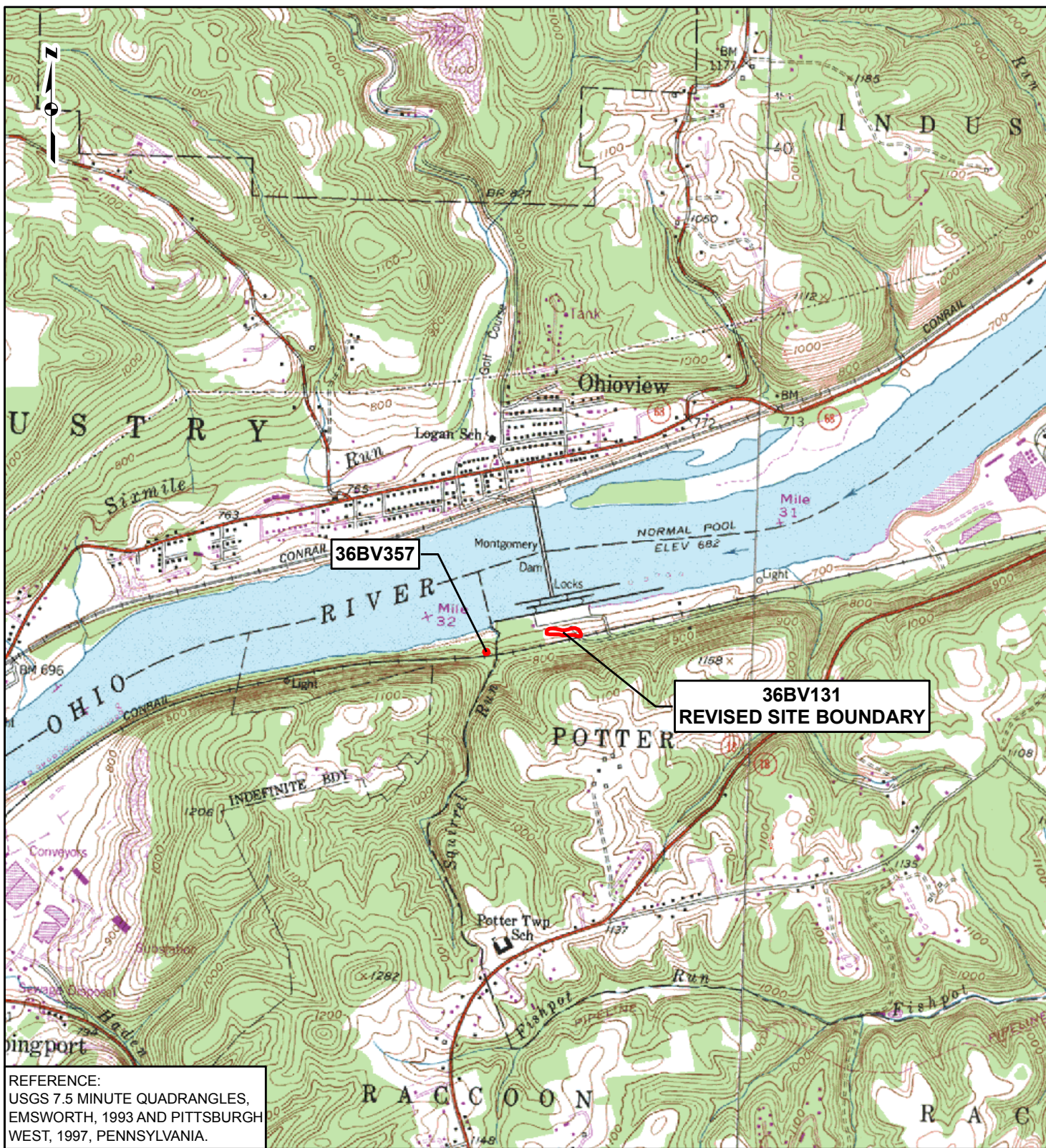
INSTITUTIONAL AFFILIATION

ADMINISTRATIVE COMMENTS

**Remember!** Ask the landowner's permission before you collect artifacts on private property. It is a violation of state law to collect artifacts on state lands and a violation of federal law to collect artifacts on federal lands.

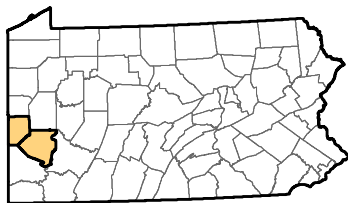
Completed forms should be sent to:  
 Bureau for Historic Preservation  
 Commonwealth Keystone Bldg, 2<sup>nd</sup> Floor  
 400 North Street  
 Harrisburg, PA 17120-0093





REFERENCE:  
USGS 7.5 MINUTE QUADRANGLES,  
EMSWORTH, 1993 AND PITTSBURGH  
WEST, 1997, PENNSYLVANIA.

#### PROJECT LOCATION



ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

#### LEGEND



ARCHAEOLOGICAL SITE BOUNDARY

0 1,000 2,000 4,000  
Feet

#### SITES 36BV357 AND 36BV131 LOCATION MAP



gai consultants

UPPER OHIO  
NAVIGATION STUDY  
AEROSTAR  
ENVIRONMENTAL SERVICES, INC.



DRAWN BY: AJW  
CHECKED: LAF

DATE: 01/07/2010  
APPROVED: LAF



# PENNSYLVANIA ARCHAEOLOGICAL SITE SURVEY

## PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

### Identification and Location

SITE NAME Montgomery Dam 2 SITE NUMBER 36BV0357 UPDATE? Y☒ / N☐

PUBLISHED REFERENCES (Including compliance reports.) \_\_\_\_\_

ER# 1997-1617-042-F

COUNTY Beaver TWP Potter NEAREST TOWN Monaca

### Site Characteristics

SITE AREA 25 SQUARE METERS BASIS: ☒ COMPUTED ON THE GROUND OR ☐ COMPUTED ON MAP

STRATIFIED? ☐ UNKNOWN ☒ NO  
☐ YES : ☐ TOP STRATUM VISIBLE OR ☐ BURIED UNDER STERILE

SITE DISCOVERY METHOD: (check primary one only) ☐ Previously Recorded (update)

- |   |  |
|---|--|
| <input type="checkbox"/> Unknown                              | <input type="checkbox"/> Auger probing             |
| <input type="checkbox"/> Collector interview                  | <input checked="" type="checkbox"/> Shovel testing |
| <input type="checkbox"/> Collector interview with field check | <input type="checkbox"/> Systematic test units     |
| <input type="checkbox"/> Non-systematic surface survey        | <input type="checkbox"/> Extensive excavation      |
| <input type="checkbox"/> Systematic surface survey            |  |
| <input type="checkbox"/> Systematic shovel testing            |  |
| <input type="checkbox"/> Remote sensing                       |  |

POTENTIAL FOR ORGANIC PRESERVATION: (check one)

- ☒ Unknown  
☐ None  
☐ Low potential for organic preservation  
☐ Conditions favorable for organic preservation, none documented  
☐ Organic material recovered, unknown quality of preservation  
☐ Organic material recovered, poor quality of preservation  
☐ Organic material recovered, good quality of preservation

SITE TYPE:

#### Prehistoric

- ☐ Unknown function surface scatter less than 20m radius  
☐ Open habitation, prehistoric  
☐ Rockshelter/Cave  
☐ Quarry  
☒ Lithic Reduction  
☐ Village (including historic Indian)  
☐ Shell Midden  
☐ Earthwork  
☐ Petroglyph/Pictograph  
☐ Burial Mound  
☐ Cemetery  
☐ Other specialized aboriginal site  
☐ Isolated flute point locus

- ☐ Isolated find (diagnostic artifact)  
☐ Paleontological site  
☐ Path

#### Historic

- ☐ Historic and Prehistoric  
☐ Domestic Site  
☐ Military Site  
☐ Industrial Site  
☐ Shipwreck Site  
☐ Commercial Site  
☐ Religious Site  
☐ Unknown/other/multiple types  
☐ Farmstead

**CHRONOLOGY** (check all that apply)

Prehistoric

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Unknown Prehistoric                                      | <input type="checkbox"/> Transitional Tradition  |
| <input type="checkbox"/> Paleoindian   | <input type="checkbox"/> Woodland  |
| <input type="checkbox"/> Early <input type="checkbox"/> Middle <input type="checkbox"/> Late | <input type="checkbox"/> Early <input type="checkbox"/> Middle <input type="checkbox"/> Late |
| <input type="checkbox"/> Archaic   | <input type="checkbox"/> Proto Historic  |
| <input type="checkbox"/> Early <input type="checkbox"/> Middle <input type="checkbox"/> Late |  |

Historic

- |   |   |
|---|---|
| <input type="checkbox"/> Unknown Historic                             | <input type="checkbox"/> 1800-1900                                    |
| <input type="checkbox"/> Contact-Historic                             | <input type="checkbox"/> 1800-1825 <input type="checkbox"/> 1825-1850 |
| <input type="checkbox"/> 1550-1600                                    | <input type="checkbox"/> 1850-1875 <input type="checkbox"/> 1875-1900 |
| <input type="checkbox"/> 1600-1650                                    | <input type="checkbox"/> 1900-  |
| <input type="checkbox"/> 1650-1700                                    | <input type="checkbox"/> 1900-1925 <input type="checkbox"/> 1925-1950 |
| <input type="checkbox"/> 1700-1800                                    | <input type="checkbox"/> 1950-1975 <input type="checkbox"/> 1975+     |
| <input type="checkbox"/> 1700-1725 <input type="checkbox"/> 1725-1750 |   |
| <input type="checkbox"/> 1750-1775 <input type="checkbox"/> 1775-1800 |   |

**BASIS FOR CHRONOLOGICAL INTERPRETATION** (check all that apply):

- |  |  |
|--|--|
| <input type="checkbox"/> Diagnostic lithic artifacts | <input type="checkbox"/> Historical Documentation        |
| <input type="checkbox"/> Ceramic types               | <input type="checkbox"/> Radio Carbon Dates (list below) |

RADIO CARBON DATES \_\_\_\_\_ ± \_\_\_\_\_  
\_\_\_\_\_ ± \_\_\_\_\_

**FEATURES?** ☒ NONE FOUND ☐ YES (identify below) If count is not known, use a "P" for present.

Prehistoric

Quantity	Prehistoric Features
	Present, Prehistoric
	Bundle Burials
	Burial Mound
	Burials
	Burned Areas
	Cache Pits
	Circular Houses
	Cremation Burials
	Earthworks

Quantity	Prehistoric Features
	Extended Burials
	Fish Weir
	Flexed Burials
	Hearth/Thermal Feature
	House Pattern
	Longhouses
	Midden Areas
	Ossuary
	Other, Prehistoric _____

Quantity	Prehistoric Features
	Path
	Petroglyph/Pictograph
	Postmolds
	Quarry Pit
	Semi-Subterranean Structures (e.g. Keyhole Structures)
	Shell Heap
	Stockade
	Storage Pits/Trash Pits

Historic

Quantity	Historic Features
	Present, Historic
	Burial
	Canal Bed
	Canal Lock
	Canal Tunnel

Quantity	Historic Features
	Cellar
	Cemetery
	Cistern
	Dam
	Ditch

Quantity	Historic Features
	Fenceline
	Flower Garden/Bed
	Fortification
	Foundation
	Ice House

Quantity	Historic Features
	Iron Furnace
	Kiln
	Midden
	Millrace
	Monument/Boundary Marker
	Oil Well
	Other, Historic _____
	Oven

Quantity	Historic Features
	Pipeline
	Pit
	Posthole/Postmold
	Privy
	Quarry/Mine
	Railroad
	Road
	Root Cellar
	Shipwreck

Quantity	Historic Features
	Springhouse/Springbox
	Standing Building or Structure
	Still
	Vat
	Walk/Path
	Wall
	Water Well
	Wharf

## Artifacts (Complete inventories may be attached, but please complete the summaries below)

### ARTIFACT DATA RECOVERY METHOD:

- |   |   |
|---|---|
| <input type="checkbox"/> Non-provenienced   | <input type="checkbox"/> Controlled excavation  |
| <input type="checkbox"/> Surface collection not representative of all artifacts   | <input type="checkbox"/> Representative sample of all artifacts (tools and/or debitage, etc.) |
| <input type="checkbox"/> Non-controlled excavation (i.e. artifact location not mapped and/or not all artifacts collected) | <input type="checkbox"/> Representative sample of tools only                                  |
| <input type="checkbox"/> Controlled surface collection  | <input type="checkbox"/> Estimate based on surface collections and/or excavation              |
|   | <input type="checkbox"/> Estimate based on informant interview                                |

### LITHIC MATERIALS FOUND ON SITE:

Quantity	Material
	Argillite
	Chalcedony
6	Chert/Flint
	Crystal Quartz
	Diabase
	Diorite
	English Flint
	French Flint
	Granite

Quantity	Material
	Hematite
	Hornfels
	Ironstone
	Jasper
	Limestone/Dolomite
	Metabasalt/Greenstone
	Metasandstone
	Onondaga Chert
	Quartz

Quantity	Material
	Quartzite
	Rhyolite (Metarhyolite)
	Sandstone
	Shale
	Siltstone
	Slate
	Steatite
	Vanport Chert (Flint Ridge)
	Unidentified

ARTIFACT CATEGORIES (Use the comments section to list any artifacts not categorize in these tables. Include either exact quantities or relative as follows:

B	Less than 25
C	25 - 50
D	51 - 100

E	101 - 200
F	201 - 400
G	401 - 800

H	801 or More
I	Present, Quantity Unknown

J	Present, Common
---	-----------------

Prehistoric (Include quantity by material type if appropriate, using the LITHIC list above. Examples:

D	Stone Debitage	52 rhyolite / 26 chert
2	Grooved Axes	sandstone

	<b>Prehistoric Artifact Types</b>	<b>Material Type</b>
	Adzes	
	Antler & Bone Artifacts	
	Bannerstones	
	Celts	
	Ceramics (Prehistoric)	
	Chipped Stone Tools	
	Clay Pipes (Prehistoric)	
	Cordage	
	Core	
	Fire Cracked Rock	
	Gorgets/Pendants/Non-Utilitarian Lithics	
	Grooved Axes	
	Ground & Polished Stone Tools	
	Hammerstones	

	<b>Prehistoric Artifact Types</b>	<b>Material Type</b>
	Hoes	
	Human Bone	
	Netsinkers	
	Non-Artifactual Bone or Antler	
	Non-Artifactual Floral Remains	
	Non-Artifactual Shell	
	Pestles/Grinding/Pitted Stones	
	Shell Artifacts	
	Steatite Bowls/Fragments	
B	Stone Debitage	6 chert
	Stone Pipes	
	Wooden Artifacts	

Historic (Include Quantities by Group as appropriate from table below):

<b>Architectural</b>	<b>Farm Tools</b>	<b>Kitchen (Domestic)</b>
Personal	Arms/Weapons	Industrial Tools

Examples:

D	Glass	50 Architectural / 29 Kitchen
G	Metal	Architectural

<b>Quantity</b>	<b>Historic Artifact</b>	<b>Group</b>
	Brick	
	Buttons	
	Ceramics (Historic)	
	Clay Pipes (Historic)	
	Coins	
	Glass	
	Glass Trade Beads	
	Gunflints	

<b>Quantity</b>	<b>Historic Artifact</b>	<b>Group</b>
	Jewelry	
	Metal	
	Non-diagnostic ceramics	
	Redware	
	Strike-a-Light	
	Textiles	
	Toys	

#### DIAGNOSTIC ARTIFACTS

**Prehistoric Projectile Points** (Include counts by material types, using the LITHIC list above. Examples:

7	Broadspears	5 rhyolite / 2 argillite
2	Lehigh/Snook Kill	chert

<b>Quantity</b>	<b>Prehistoric Point Types</b>	<b>Material</b>
-----	Paleoindian Points	-----
	Pre-Clovis	

<b>Quantity</b>	<b>Prehistoric Point Types</b>	<b>Material</b>
	Clovis	
	Mid-Paleo (Folsom)	

Quantity	Prehistoric Point Types	Material
	Late Paleo (Plano)	
	Hardaway-Dalton	
	Fluted Point	
-----	Early Archaic Points	-----
	Palmer	
	Kirk Corner-notched	
	St. Charles	
	Thebes	
	Charleston	
-----	Middle Archaic Points	-----
	Bifurcate Points	
	Middle Archaic Notched/Stemmed Points	
	MacCorkle	
	Saint Albans	
	LeCroy	
	Otter Creek	
	Kanawha	
	Kirk Stemmed	
-----	Late Archaic Points	-----
	Piedmont Tradition	
	Laurentian Tradition	
	Steubenville	

Quantity	Prehistoric Point Types	Material
-----	Transitional Tradition	-----
	Koens Crispins/Savannah River	
	Broadspears	
	Lehigh/Snook Kill	
	Perkiomen	
	Susquehanna	
-----	Early Woodland Points	-----
	Adena (Stemmed)	
	Meadowood	
	Helgramite	
	Orient	
-----	Middle Woodland Points	-----
	Raccoon Notched	
	Snyders	
	Basal Notched	
	Jacks Reef	
	Fox Creek	
-----	Late Woodland Points	-----
	Triangles (Late Woodland)	
-----	Proto Historic Points	-----
	Triangles (Proto Historic)	

**Prehistoric Ceramic Types** (Include counts by temper types - if not implied in name - using the LITHIC list above. Additional options include “grit”, “grog” or “shell.”.)

Quantity	Prehistoric Ceramics	Temper
-----	Early Woodland Ceramics	-----
	Accokeek Ware	
	Adena Plain	
	Grit Tempered Flat Bottom	
	Half-Moon Cordmarked	
	Interior-Exterior Cordmarked Small Temper-Conical/Globular	
	Marcy Creek	
	Steatite Tempered	
	Vinette I (Interior-Exterior Cordmarked Large Temper-Conical/Globular)	
-----	Middle Woodland/Middle to Late Woodland Ohio Valley Ceramics	-----
	Abott Zoned	
	Grit Tempered Exterior Cordmarked-Conical/Globular	
	Grit Tempered Net	

Quantity	Prehistoric Ceramics	Temper
	Impressed-Conical/Globular	
	Point Peninsula Series	
	Shell Tempered Net	
	Impressed-Conical/Globular	
	Watson Cord Marked	
-----	Late Woodland Ceramics	-----
	Blue Rock Valanced	
	Chance Series	
	Chautauqua Cordmarked	
	Clemsons Island/Princess Point Series	
	Early Ontario Iroquois	
	Erie Series	
	Funk Incised	
	Keyser Cordmarked	
	Lancaster Incised	
	Mahoning Cord Marked	
	McFate Incised	
	McFate/Quiggle	

Quantity	Prehistoric Ceramics	Temper
	Undifferentiated	
	Meade Island Series	
	Minguannan Series	
	Monongahela (Undifferentiated)	
	Monongahela Cordmarked-Late Woodland	
	Monongahela Incised	
	Monongahela Plain	
	Monongahela Somerset Phase	
	Oak Hill Series	
	Overpeck	
	Owasco Series	
	Page Cordmarked	
	Potomac Creek Cord Impressed	
	Proto-Susquehannock	
	Quiggle Incised	

Quantity	Prehistoric Ceramics	Temper
	Richmond Incised	
	Schultz Incised	
	Shenks Ferry (Undifferentiated)	
	Shenks Ferry Cordmarked	
	Shenks Ferry Incised (Blue Rock Phase)	
	Shenks Ferry Incised (Stewart Phase)	
	Shepard Cordmarked	
	Strickler Cordmarked	
	Susquehannock (Undifferentiated)	
	Townsend	
	Tribal Series	
	Washington Boro Incised	
	Whittlesey	
	Wyoming Valley Series	

### Historic Ceramics

Quantity	Historic Ceramics
	American Stoneware (Blue and Gray)
	Basalt
	Chinese Porcelain
	Cream-Colored Ware
	Creamware
	Dry-Bodied (Engine Turned)
	English Brown Stoneware

Quantity	Historic Ceramics
	English Porcelain
	Fulham
	Ironstone
	Jackfield
	Nottingham
	Pearlware (All Decoration Types)
	Rhenish
	Rockingham

Quantity	Historic Ceramics
	Scratch Blue/Brown Salt-Glaze Stoneware
	Tin-Glazed Earthenware
	Whieldon
	White Salt-Glaze Stoneware
	White Ware (Transitional)
	Yellowware

**Physical Data and Site Condition** Instructions available. Please fill out as much as is known, especially those items that are measured or observed on site.

On site SOIL ASSOCIATION Conotton gravelly Loam SOIL MAPPING UNIT Coc

Most common other mapped SOIL UNIT(S) within 500 meters Weikert-Rock outcrop complex (WeF) (may list two)

MAP ELEVATION (Site Elevation: 760 ft) SLOPE PERCENTAGE 8%-15% SLOPE DIRECTION North

SLOPE BASIS ☐ MEASURED ON SITE ☒ ESTIMATED FROM SOIL SURVEY OR MAP

BEDROCK Glenshaw Most predominant other BEDROCK(S) within 5 km Vanport and Casselman (may list two)

PHYSIOGRAPHIC PROVINCE Pittsburgh Low Plateau Section (If within 10 km of a Physiographic Province boundary, name the neighboring PHYSIOGRAPHIC PROVINCE \_\_\_\_\_)

TOPOGRAPHIC SETTING (check the one that best describes the setting):

- |                                     |   |   |
|-------------------------------------|---|---|
| <input type="checkbox"/> Island     | <input type="checkbox"/> Rise in Floodplain                           | <input type="checkbox"/> Middle Hillslope |
| <input type="checkbox"/> Beach      | <input checked="" type="checkbox"/> Terrace (Pleistocene along river) | <input type="checkbox"/> Upper Hillslope  |
| <input type="checkbox"/> Floodplain | <input type="checkbox"/> Lower Hillslope                              |   |

SITE NAME Montgomery Dam 2 SITE NUMBER 36-BV-0357 DATE 09/28/2009

☐ Stream Bench (along low order stream)  
☐ Hill/Ridge Toe

☐ Upland Flat  
☐ Hilltop  
☐ Ridge Top

☐ Saddle

IMMEDIATE VEGETATION Mixed Hardwoods and low brush PERCENTAGE OF SITE STILL INTACT Unknown

PRIMARY DISTURBANCE Railroad & rechannelization of Squirrel Run POSSIBILITY OF DESTRUCTION Unknown

**Water Drainage Area Information** Instructions available. Please fill out as much as is known, especially those items that are measured or observed on site. Distance to water is particularly critical.

SUBBASIN Ohio River WATERSHED D MAJOR STREAM Ohio River MINOR STREAM Squirrel Run

NEAREST WATER: Distance 60 m Elevation 800 ft Direction East Order 1 Type Perennial Stream

2<sup>ND</sup> NEAREST WATER: Distance 116.7 m Elevation 666 ft Direction North Order 9 Type Perennial River

NEAREST PERENNIAL STREAM CONFLUENCE:

Distance 137.8 m Elevation 666 ft Direction North Order below confluence 3

RELATIONSHIP OF FIRST AND SECOND WATER (check one)

- ☐ Do not represent a stream confluence.
- ☐ Site is located upstream from the confluence and between the 2 water sources.
- ☐ Site is located upstream from the confluence, but not between the 2 water sources.
- ☒ Site is located downstream from the confluence.
- ☐ None of the above apply.

**COMMENTS:** This is a low density prehistoric lithic scatter found along a low, eroded wooded terrace south of the Ohio River, and west of Squirrel Run. The area surrounding the site is either disturbed or steep slopes.

**ATTACH PHOTOGRAPHS OR DRAWINGS OF DIAGNOSTIC ARTIFACTS WITH SCALE. IDENTIFY LITHIC MATERIAL TO ARTIFACTS USING DESCRIPTION OR KEY.**

**GENERAL SITE PHOTOGRAPHS OR EXCAVATION PHOTOGRAPHS OR DRAWINGS MAY ALSO BE INCLUDED.**

*We encourage the inclusion of as many illustrations as possible.*





**Photograph 1 Typical Shovel Test Pit (STP 26)**



**Photograph 2 Crew digging Shovel Test Pit**



## ADMINISTRATIVE INFORMATION (CONFIDENTIAL ITEMS HIGHLIGHTED)

7.5 QUAD NAME	<u>Midland</u>	EDITION	<u>1954</u>	UP <u>9.5cm</u>	ACROSS <u>5cm</u>
---------------	----------------	---------	-------------	-----------------	-------------------

(Measure in centimeters from the bottom printed edge upward, and the right printed edge across)

**-OR-**

U.T.M. COORDINATES: ZONE 17 NORTHING 4499652 EASTING 0551698

**ATTACH SEPARATE SKETCH MAP OF SITE AND/OR PORTION OF 7.5 MIN USGS MAP WITH SITE BOUNDARIES INDICATED.**

OWNER CSX Transportation, Inc. ADDRESS CSX Transportation, Inc., attn: Becky Snyder, 500 Water Street (C910),

Jacksonville, FL 32202

TAX PARCEL ID \_\_\_\_\_ TAX MAP DATE \_\_\_\_\_

☒ PRIVATE LANDOWNER    ☐ PUBLIC LANDOWNER - ☐ FEDERAL    ☐ STATE    ☐ LOCAL

**COLLECTION LOCATIONS** Temporary: GAI Consultants, 385 East Waterfront Drive, Homestead PA, 15120  
Permanent: Pennsylvania Bureau for Historic Preservation, Commonwealth Keystone Building, 2<sup>nd</sup> Floor, 400 North Street,  
Harrisburg PA

## INFORMANTS

## RECORDING REASON

- |  |   |
|--|---|
| <input type="checkbox"/> Informant Interview/Amateur Survey            | <input type="checkbox"/> Non-PHMC institution affiliated research             |
| <input checked="" type="checkbox"/> State or Federal Compliance Survey | <input type="checkbox"/> PHMC Research  |
| <input type="checkbox"/> PHMC Grant                                    | <input type="checkbox"/> Other (Explain in 'Comments' section at end of form) |

## CRITERIA FOR NATIONAL REGISTER INCLUSION

SUBMITTED BY GAI Consultants, Inc. ADDRESS 385 East Waterfront Drive

CITY Homestead	STATE PA	DATE 09/14/2009
----------------	----------	-----------------

PHONE NUMBER 412-476-2000 x1205      EMAIL ADDRESS l.frye@gaiconsultants.com

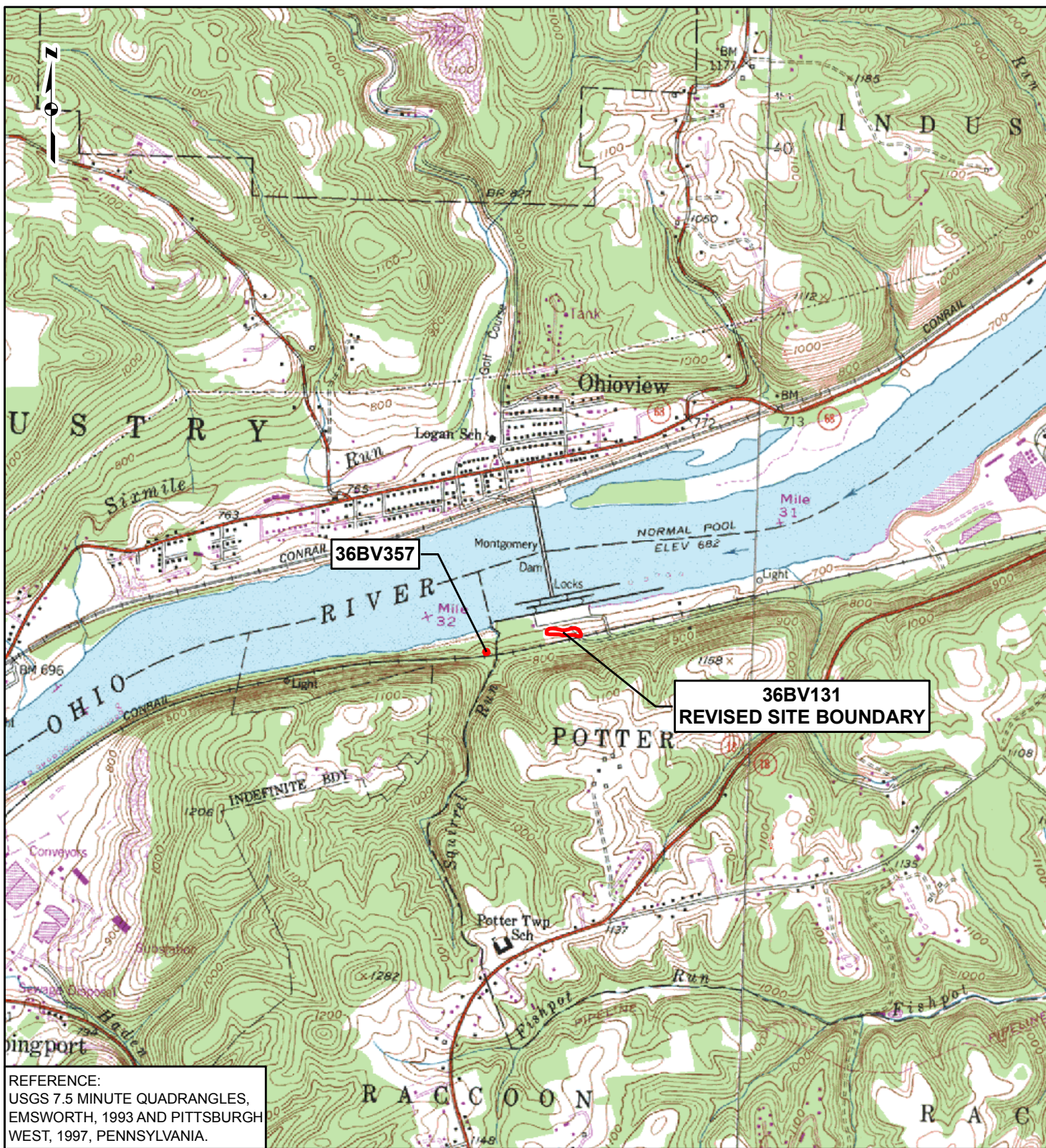
## S.P.A. CHAPTER AFFILIATION

INSTITUTIONAL AFFILIATION \_\_\_\_\_

ADMINISTRATIVE COMMENTS

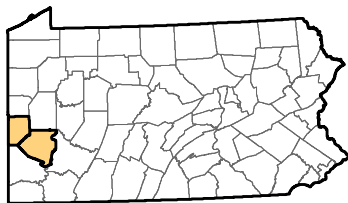
**Remember!** Ask the landowner's permission before you collect artifacts on private property. It is a violation of state law to collect artifacts on state lands and a violation of federal law to collect artifacts on federal lands.

Completed forms should be sent to:  
Bureau for Historic Preservation  
Commonwealth Keystone Bldg, 2<sup>nd</sup> Floor  
400 North Street  
Harrisburg, PA 17120-0093



REFERENCE:  
USGS 7.5 MINUTE QUADRANGLES,  
EMSWORTH, 1993 AND PITTSBURGH  
WEST, 1997, PENNSYLVANIA.

#### PROJECT LOCATION



ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

#### LEGEND



ARCHAEOLOGICAL SITE BOUNDARY

0 1,000 2,000 4,000  
Feet

#### SITES 36BV357 AND 36BV131 LOCATION MAP



gai consultants

UPPER OHIO  
NAVIGATION STUDY  
AEROSTAR



ENVIRONMENTAL SERVICES, INC.

DRAWN BY: AJW  
CHECKED: LAF

DATE: 01/07/2010  
APPROVED: LAF

**APPENDIX D**  
**ARTIFACT CATALOGS**



### 36AL0600 Dashields Dam Historic Catalog

Fs	Stp	Strat	Lev	Elev	Count	Class	Sub-Class	Ware Type/Object	Form	Beg Date	End Date	Reference
1	1	I	1	0-25 cmbgs	1	Kitchen	Ceramics	whiteware, plain	base, footring	1830	2008	Price 1979; Noel Hume 1980
1	1	I	1	0-25 cmbgs	2	Kitchen	Ceramics	whiteware, plain	body	1830	2008	Price 1979; Noel Hume 1980
					3	TOTAL						

### 36AL0600 Dashields Dam Lithic Catalog

Fs	Stp	Strat	Elev	Count	Weight	Material Type	Class	Type	Cortex	Length	Width	Thick	Point Type	Comments
2	2	II	24-59 cmbgs	1	1.53	Black Chert	Biface	Ind Biface Frag	Absent	6.6				maybe Onondaga Chert
3	R2	III	35-52 cmbgs	2	0.54	Black Chert	Debitage	Biface Reduction	Absent					maybe Onondaga Chert
3	R2	III	35-52 cmbgs	1	0.28	Black Chert	Debitage	Flake Fragments	Cobble					maybe Onondaga Chert
3	R2	III	35-52 cmbgs	1	0.49	Tan Chert	Debitage	Early Reduction	Cobble					
4	4	III	41-52 cmbgs	1	0.26	Black Chert	Debitage	Biface Reduction	Absent					maybe Onondaga Chert
4	4	III	41-52 cmbgs	1	0.28	Black Chert	Debitage	Flake Fragments	Absent					maybe Onondaga Chert
5	R2	III	34-52 cmbgs	1	2.16	Gray Chert, Fossiliferous	Biface	Projectile Points	Absent		18.3	5.6	Brewerton Side-notched	Late Archaic, tip missing
6	R6	IV	45-56 cmbgs	2	0.22	Laurel Chert	Debitage	Flake Fragments	Absent					
7	5	III	46-56 cmbgs	1	0.32	Laurel Chert	Debitage	Flake Fragments	Absent					
				11		TOTAL								

### 36BV131 Montgomery Dam Historic Catalog

Fs	Stp	Strat	Lev	Elev	Count	Class	Sub-Class	Ware Type/Object	Décor/Man Tech	Color	Motif; Emb; Marks	Form	Beg	End	Reference
2	R4	I	1	0-20 cmbgs	1	Activities	Activities-Other	Wire							
2	R4	I	1	0-20 cmbgs	1	Faunal	Bone	Bone							
2	R4	I	1	0-20 cmbgs	1	Unidentifiable	Indeterminate	Metal rod							
3	14	I	1	0-20 cmbgs	1	Architecture	Nails,Spikes,Etc.	Nail, wire					1880	2008	Nelson 1968; IMAC 1984
5		Surface	0		1	Kitchen	Bottles/Jars	Beverage Bottle	Crown finish; Stippled, Embossed	clear	"Dad's, No Deposit, Half Gallon" "Patent Pending Copyright By Dads Root Beer Co Chicago Ill" Fairmont Glass Works	Whole bottle	1933	1968	Toulouse 1971; Lief 1965
5		Surface	0		1	Kitchen	Bottles/Jars	Mason jar	Embossed; Standardized screw thread	clear	"Atlas Strong Shoulder Mason"	Whole jar	1919	2009	Deiss 1981
6		Surface	0		1	Kitchen	Bottles/Jars	Mason jar	Embossed; Standardized screw thread	clear	"Ball"	Whole jar	1919	2009	Deiss 1981; Toulouse 1971
7	J1	A	0	0-.75 ft	1	Architecture	Nails,Spikes,Etc.	Nail, indeterminate							
7	J1	A	0	0-.75 ft	2	Architecture	Window Glass	Window glass		clear					
7	J1	A	0	0-.75 ft	1	Furnishings	Lighting	Chimney lamp glass		clear		body			
7	J1	A	0	0-.75 ft	1	Furnishings	Lighting	Chimney lamp glass		clear		rim			
7	J1	A	0	0-.75 ft	3	Kitchen	Bottles/Jars	Bottle glass		clear		body			
8	J2	A	0	0-.5 ft	6	Architecture	Window Glass	Window glass		clear					
8	J2	A	0	0-.5 ft	1	Kitchen	Ceramics	Eathenware		tan		handle			
9	J3	A	0	0-.5 ft	1	Architecture	Nails,Spikes,Etc.	Nail, indeterminate							
10	J1 R1	A	0	0-.75 ft	1	Kitchen	Bottles/Jars	ironstone	Chip			body	1840	2009	Wetherbee 1980
11	J1 R2	A	0	0-.6 ft	1	Architecture	Window Glass	Window glass		clear					
11	J1 R2	A	0	0-.6 ft	2	Kitchen	Ceramics	Whiteware, plain				body	1830	2009	Price 1979; Noel Hume 1980
11	J1 R2	A	0	0-.6 ft	1	Kitchen	Ceramics	Whiteware, plain	Chip			body	1830	2009	Price 1979; Noel Hume 1980

Fs	Stp	Strat	Lev	Elev	Count	Class	Sub-Class	Ware Type/Object	Décor/Man Tech	Color	Motif; Emb; Marks	Form	Beg	End	Reference
12	J1 R5	A	0	0-.5 ft	1	Architecture	Window Glass	Window glass		tinted					
12	J1 R5	A	0	0-.5 ft	1	Kitchen	Ceramics	Yellowware, plain				body	1830	1900	Ketchum 1987
13	J1 R6	A	0	0-.65 ft	1			NCM							
13	J1 R6	A	0	0-.65 ft	6	Kitchen	Bottles/Jars	Bottle glass		light blue		base			
13	J1 R6	A	0	0-.65 ft	1	Kitchen	Ceramics	Stoneware, buff	Gray saltglaze ext & red wash int			body			
13	J1 R6	A	0	0-.65 ft	4	Unidentifiable	Indeterminate	Plastic, fragment		white					
14	J1 R8	A	0	0-.85 ft	1	Kitchen	Ceramics	Whiteware, handpainted	Indeterminate motif	medium blue		body	1840	1860	Lofstrum et al 1982; Majewski & Obrien 1984
					43	TOTAL									

### 36BV131 Montgomery Dam Lithic Catalog

Fs	Area	Stp	Strat	Lev	Elev	Count	Weight	Material Type	Class	Type	Cortex	Thick	Comments
1	Test Area B	13	I	1	0-18 cmbgs	1	4.9	Upper Mercer- Coshocton	Biface	Ind Biface Frag	Absent	8	possibly a biface split



### 36BV0357 Montgomery Dam 2 Lithic Catalog

Fs	Stp	Strat	Lev	Elev	Count	Weight	Material Type	Class	Type	Cortex
1	26	II	2	12-23 cmbgs	1	0.31	Uniontown	Debitage	Flake Fragments	Absent
2	R1	II		23-43 cmbgs	1	10.16	Gull River	Debitage	Decortication Flakes	Cobble
2	R1	II		23-43 cmbgs	1	0.74	Uniontown	Debitage	Flake Fragments	Absent
2	R1	II		23-43 cmbgs	1	0.16	Black Chert	Debitage	Flake Fragments	Absent
3	R2	II		14-25 cmbgs	2	2.58	Monongehela	Debitage	Biface Reduction	Absent
					6	TOTAL				

### Isolated Find Catalog

Fs	Stp	Strat	Lev	Elev	Count	Class	Sub-Class	Ware Type/Object
4	19	I	1	0-10 cmbgs	1	Unidentifiable	Indeterminate	Misc metal

## Non-site Catalog

Fs	Stp	Strat	Lev	Elev	Count	Class	Sub-Class	Ware Type/Object	Manufacturing Tech	Color	Motif; Embossment; Makers Mark	Form	Beg Date	End Date	Reference
1	1	I	1	0-90 cmbgs	1	Kitchen	Bottles/Jars	Bottle glass, Indeterminate	standardized screw threads	cobalt	"Made in U.S.A." "Genuine Phillips" Hazel Atlas "11Z"	bottle, whole	1920	1960	IMAC 1984; Toulouse 1971
1	1	I	1	0-90 cmbgs	1	Kitchen	Ceramics	Hardpaste Porcelain, Underglaze Decal 1897-present		blue, light, green, medium, pink, yellow	"11-CC" "Syracuse" "China"	bowl			
1	1	I	1	0-90 cmbgs	1	Activities	Writing	inkwell/inkstand bottle	incised, machine made, stippled	clear	"Parker" "Made in USA" "2 oz" "99 CC" "2"; "A" with circle around it. American Glassworks or Armstrong Cork Co. (Same insignia, diff dates)	inkwell	1908	1935	Toulouse 1971
1	1	I	1	0-90 cmbgs	6	Kitchen	Kitchenware - other	lid or cover, jar				lid			
1	1	I	1	0-90 cmbgs	1	Activities	Activities-Other	lipstick/balm container		gray, pink, white, opaque	"Made in USA" "Patent Pending"				
1	1	I	1	0-90 cmbgs	1	Personal	Pharmaceutical	pharmaceutical bottle/jar	cup bottom mold, machine made, standardized screw threads	clear	Dosing lines on front of bottle, "1/2" in circle on neck, "Illinois" ; Owens' Illinois. "18" "6" on either sides of mark	bottle	1932	1943	Toulouse 1971
1	1	I	1	0-90 cmbgs	1	Personal	Pharmaceutical	pharmaceutical bottle/jar		clear	"TCW Co" "Type 2" "9" "USA" T.C. Wheaton Co. Millvale, NJ	bottle	1888	2008	Toulouse 1971
1	1	I	1	0-90 cmbgs	1	Activities	Toys	Toys, General		blue, medium, yellow					

Fs	Stp	Strat	Lev	Elev	Count	Class	Sub-Class	Ware Type/Object	Manufacturing Tech	Color	Motif; Embossment; Makers Mark	Form	Beg Date	End Date	Reference
1	1	I	1	0-90 cmbgs	1	Activities	Toys	Toys, General		blue, medium, yellow					
1	1	I	1	0-90 cmbgs	1	Kitchen	Ceramics	Whiteware - Colored Glaze		yellow		body	1830	2008	Price 1979; Noel Hume 1980
15						TOTAL									

**APPENDIX E**  
**EXCAVATION DOCUMENTS**



## Upper Ohio Navigation Study, Pennsylvania

### Excavation/Trenching Plan

This Excavation/Trenching Plan has been prepared in conformance with Section 25 of the US Army Corps of Engineers Safety and Health Requirement Manual EM 385-1-1, dated September 15, 2008.

- A. Conditions. Three backhoe trenches (geomorphology mechanical trenches) are to be excavated in a disused, former industrial site along the east bank of the Ohio River immediately downstream of Dashields Dam to enable the geomorphologist to assess the landforms for prehistoric archeological site potential and to evaluate the potential for deeply buried archeological resources.
- B. Credentials of the Competent Person. The designated competent persons are Dr. David Cremeens, who is a certified professional soil scientist with over twenty years of experience in performing soil investigations of this type, and F. Michael Anderson, GAI's Corporate Safety Officer. Their resumes are attached. Mr. Anderson will remain topside while Dr. Cremeens does his work within the excavations.
- C. Area of Proposed Work. The locations of the trenches are shown by the three nearly parallel, solid red lines in the area on the east river bank that is denoted "19.2 Acres, Primary" (Figure 1). The trenches will not exceed 30 meters in length with a ramp at either end for ingress/egress.
- D. Projected Depth of the Excavation. Typically, the trench excavations to be entered by the geomorphologist are not expected to exceed 2 to 3 meters in depth. Also, the trenches will extend no deeper than the water table or to such depth that instability of the side slopes or trench bottom precludes their further deepening. In any case, the trenches are not expected to exceed 5 meters in depth.
- E. Projected Soil Type and Method of Testing to Determine Soil Type. The projected soil types are expected to be similar to those encountered in trenches excavated earlier within the same landform on the east bank of the Ohio River, approximately one mile to the north. At that location, in terms defined in Table 25-1 of EM 385-1-1, a sequence of Type A and B soils was found to overlies deeper-lying Type C soils, (Gray & Pape, 2002; Geoarcheology Research Associates, Inc, 2009). For purposes of this Excavation Plan, it is assumed that the competent person will enter the trench only where Type A and B soils are present. The competent person will not enter the trench where Type C soils are present, although the trench may extend into Type C soils, in which case those soils will be viewed from outside the trench. The competent person will classify the soils as the excavation proceeds using visual characteristics, the plasticity/wet thread test,

and the pocket penetrometer to estimate the unconfined compressive strength of soils that exhibit cohesive characteristics. The competent person will be vigilant for conditions exposed in the excavation that could potentially influence the stability of the excavation or otherwise promote a dangerous workplace. These conditions include, for example, seeps, running sand, soft soil zones, pre-existing slip surfaces/discontinuities, concrete slabs and rubble, reinforcing bars, and the like.

- F. Planned Method of Shoring, Sloping, and Benching. As required by Article 25.C.01 of EM 385-1-1, slopes and benches will be excavated in accordance with OSHA (29 CFR 1926, Subpart P, Appendix B). The base width of each trench is anticipated to be 1.5 meters, or the width of an excavator bucket. Trenches in Type A and/or Type B soils that are no more than 1.5 meters (5 feet) in depth, and for which the competent person determines there to be no potential for cave-in, will be provided with a means of egress (a ladder or ramp), but no protective system. Trenches in Type A and/or Type B soils that exceed 1.5 meters in depth but are no deeper than 6 meters (and typically will be no deeper than 2 to 3 meters) will be provided with a means of egress and will be excavated with a multiple bench system so as to maintain overall side slopes no steeper than 1H:1V (45 degrees). Refer to the accompanying sketch (Figure 2). The Registered Professional Engineer who prepared this plan will be consulted in the event that a technical decision is required as to the degree of flattening required to achieve stable conditions. Diversion ditches will be excavated as necessary to prevent surface water from entering an excavation. It is emphasized that the excavations will have no vertically lowered portions in Type C soils unless the excavation has first been vacated by the competent person and the vertically lowered section is viewed from outside the excavation.
- G. Planned Method for Confined Space Entry, Trench Access and Egress and Atmospheric Monitoring Process. The excavation is not exposed to members of the public or vehicles and equipment. Where the trench excavation is over 1.2 meters (4 feet) in depth, ladders or other means of egress, such as ramps at least 4 feet wide, will be provided so as to require no more than 25 feet of lateral travel. At least two means of exit will be provided for personnel working in an excavation. Should the width of the excavation exceed 100 feet, two or more means of exit will be provided on each side of the excavation. The atmosphere will be monitored within any excavation greater than four (4) feet in depth using an air monitoring device.
- H. Location of Utility Shut-Offs. No utilities are located within the excavation area or within a distance laterally of at least ten times the planned depth of the trench.
- I. Proposed Methods of Preventing Damage to Overhead Utility Lines, Trees Designated to Remain, and Other Man-Made Facilities or Natural Features



Designated to Remain Within or Adjacent to the Construction Rights of Way. No overhead utility lines, trees, or features designated to remain (either man-made or natural) are present within the area where the trenches are to be excavated.

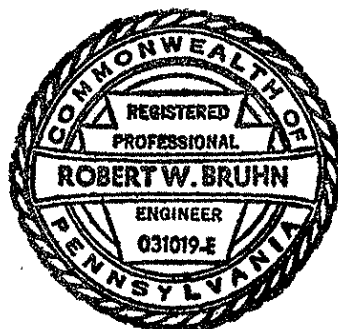
- J. Plan for Management of Excavated Soil/Asphalt/Concrete. Materials excavated from the trenches are anticipated to consist primarily of soil and rock particles, but may include some concrete or other such materials. These materials will be stockpiled alongside the trench during the course of the excavation. The stockpiled material will be placed no closer than five feet to the edge of the pit at a slope no steeper than the angle of repose of the material. The material will be returned to the pit upon completion of the investigation. The material will be placed in the pit in one to two foot lifts and will be tamped by the excavator bucket.
- K. Plan for Traffic Control. No traffic will be present within the area of investigation except for vehicles associated with the investigation itself. All vehicles will be prohibited from approaching the any closer than 50 feet to the edge of the excavation and associated stockpiles of excavated material by a series of traffic cones and yellow ribbon surrounding the work area.
- L. Digging Permits (Excavation Permits). The Contractor will make the required Pennsylvania One Call for utility location and will review any utility location information from the Corps. (The PA One Call reference number is 20091892711.) Present information is that no utilities are present onsite. It is understood that no excavation permit will be required for this investigation.
- M. Certification of UXO clearance. This site is not known or suspected to contain explosives, unexploded munitions, or military ordnance. Surface and subsurface clearance by qualified explosive ordnance disposal personnel is not required.
- N. For Cofferdams. Not applicable.

Prepared by,  
GAI Consultants, Inc.



Robert W. Bruhn, P.E.

PE0301019E  
(Exp 9/30/2009)



## References

Geoarcheology Research Associates, Inc (2009). Interim Geomorphological Report for Archeological Site 36AL480, Including Areas 1, 2, 3 South, Casting Basin, Back Channel, and Phase II Blocks, Leetsdale Industrial Park, Leetsdale, Allegheny County, Pennsylvania. Prepared for Greenhorne & O'Mara, Inc. under contract to US Army Corps of Engineers, Pittsburgh District, March 2009.

Gray & Pape (2002). Geomorphology of Archaeological Site 36AL480 at Leetsdale Industrial Park, Leetsdale, Allegheny County, Pennsylvania. Prepared for US Army Corps of Engineers, Pittsburgh District by Gray & Pape, Inc., Cincinnati, OH, March 11, 2002.

## FIGURES

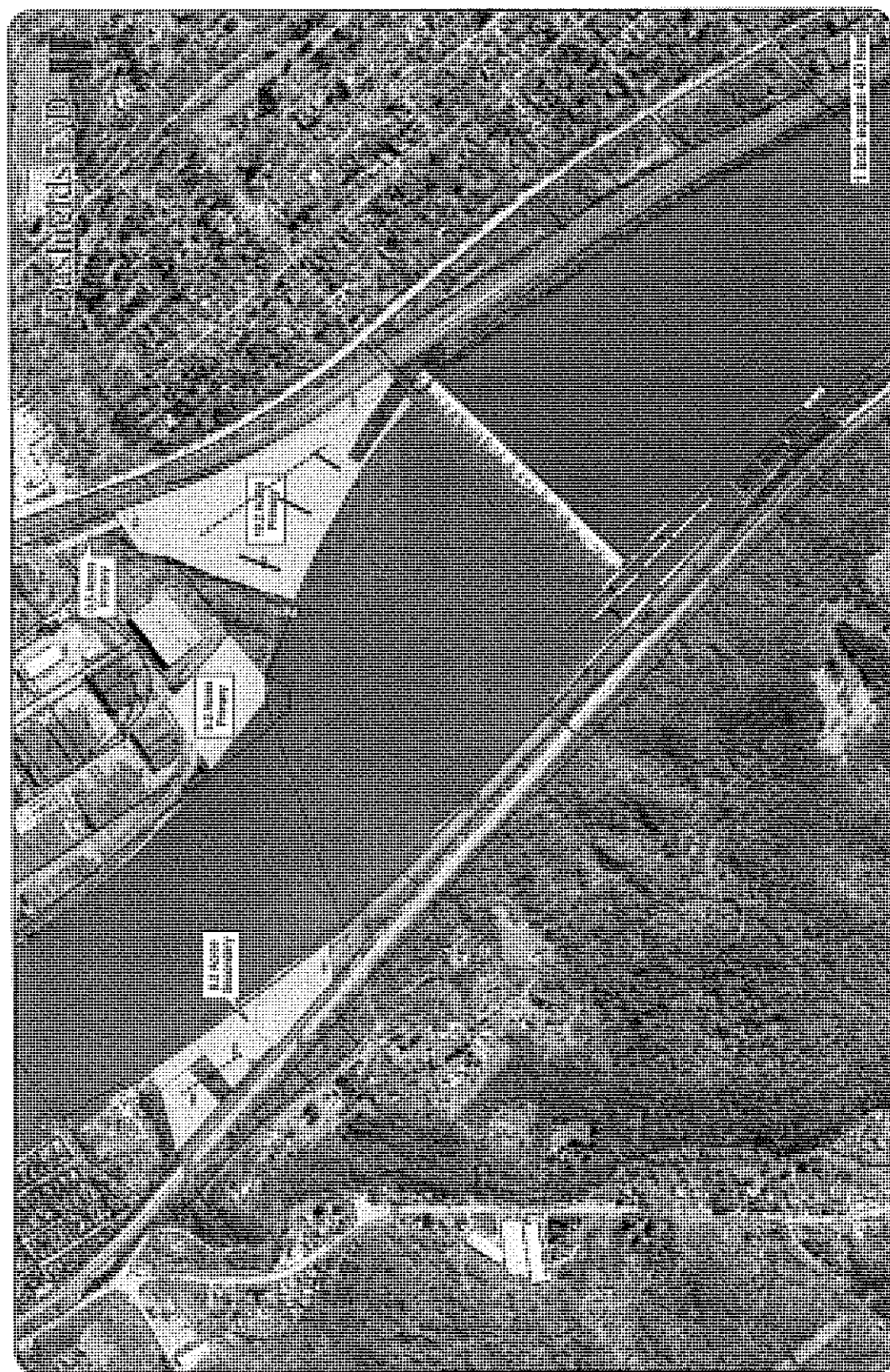


Figure 1. Dashed Primary and Secondary Work Areas (Cultural resource testing shown as solid and dotted red lines)

Figure 2

SUBJECT TYPICAL TRENCH PROFILE

BY [Signature]

DATE 4 July 09

PROJ. NO. \_\_\_\_\_

CHKD. BY \_\_\_\_\_

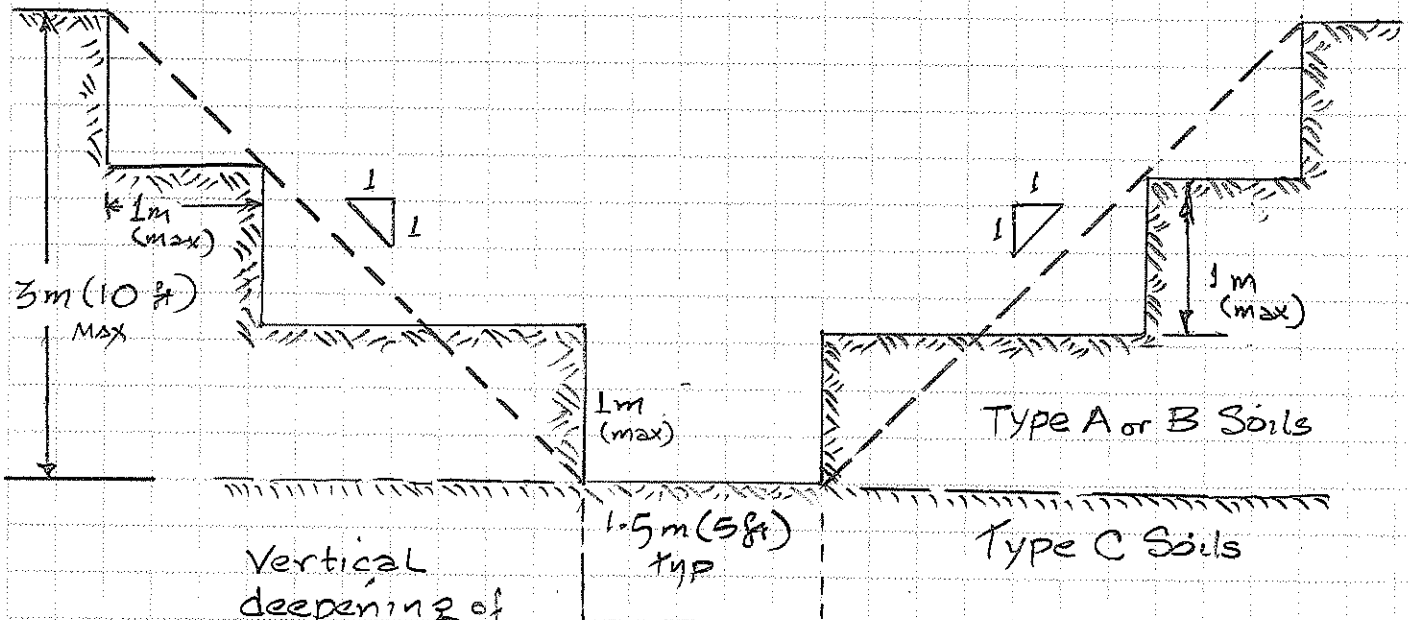
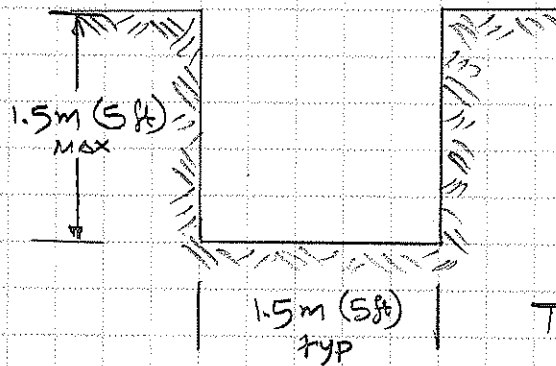
DATE \_\_\_\_\_

SHEET NO. \_\_\_\_\_

OF \_\_\_\_\_



gai consultants



Vertical deepening of trench in Type C Soils only after trench has been vacated by competent person.

# **Erosion and Sedimentation Control Plan**

AEROSTAR Environmental Services, Inc.  
Upper Ohio Navigation Study Project  
Edgeworth Borough, Allegheny County, Pennsylvania

AEROSTAR Project 0109-251-19  
GAI Project C070839.03, Task 005.02  
July 2009

Prepared For: AEROSTAR Environmental Services, Inc.  
11181 St. Johns Industrial Parkway North  
Jacksonville, Florida 32246

Prepared By: GAI Consultants, Inc.  
Pittsburgh Office  
385 East Waterfront Drive  
Homestead, Pennsylvania 15120-5005



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## **1.0 PROJECT OVERVIEW**

### **1.1 Project Description and Purpose**

This Erosion and Sedimentation Control Plan (E&SCP) sets forth a work plan for a portion of the construction of AEROSTAR Environmental Services, Inc. (AEROSTAR's) proposed Upper Ohio Navigation Study Project (Project), located in Edgeworth Borough, Allegheny County, Pennsylvania (PA). The Project involves three archeological digs consisting of backhoe trenches that will not exceed 20 meters in length, six meters in width, and four meters in depth.

The purpose of this E&SCP document is to minimize and/or avoid potential adverse environmental impacts due to the construction activities associated with archeological test digs. The proposed practices are intended to maintain, to the fullest extent practicable, the integrity of sensitive resources such as wetlands and streams or protected habitats, if any, located within the work areas. This document was prepared in accordance with the PA Department of Environmental Protection's (PaDEP's) *Erosion and Sediment Pollution Control Program Manual*, dated April 2000;

The Upper Ohio Navigation Study, PA, is a feasibility planning study for alternatives to modernize the Dashields lock and dam facility on the Ohio River in PA. The Phase I limited archaeological field investigation of the site area will include three backhoe trenches and approximately 30 shovel pit tests. It is also assumed that the total dimensions of each backhoe trench will not exceed 20 meters in length, six meters in width, and four meters in depth.

### **1.2 Acreage Disturbed**

The total area to be disturbed is approximately 2.8 acres.

### **1.3 Project Date**

Construction is scheduled for the summer of 2009.

### **1.4 Plan Preparers**

The principal preparers of this E&SCP are Mr. Allan D. Schuck, Engineer-in-Training, and Mr. Kevin P. Resnik, Engineer-in-Training, of GAI Consultants, Inc. (GAI), Pittsburgh Office, 385 East Waterfront Drive, Homestead, PA (412-476-2000). Mr. Schuck has over five years of environmental compliance experience, including the preparation and review of E&SCPs. Mr. Resnik has less than one year of environmental compliance experience.

## **2.0 FACILITY DESCRIPTION**

### **2.1 Topographic Features**

The Project site is characterized by flat to moderately sloped areas adjacent to the Ohio River. The existing site is made up of open areas with good vegetation and wooded areas. Stormwater runoff normally follows well-established natural watercourses throughout the area. The location of this Project area is indicated on the United States Geological Survey topographic map provided on Figure 1, Project Location Map.

### **2.2 Soils**

Based on the *Soil Survey of Allegheny County, Pennsylvania* (United States Department of Agriculture, Soil Conservation Service, 2000), the soils in the Project area are classified as URB - Urban Land-Rainsboro complex, gently sloping.



The Urban land-Rainsboro complex, URB, is a moderately well drained soil with a very deep depth to bedrock. This soil has no flooding potential. URB is not prime farmland. The soil is classified as partially hydric with components typical of flood plains and depressions. This soil has a moderate erosion hazard rating.

Locations of soils are provided on the Soils Map (Figure 2).

### **2.3 Past, Present, and Proposed Land Uses and Alterations**

The Project area contains wooded and open land areas with good vegetative cover. The proposed Project will consist of three archeological dig locations. The ground disturbance will be temporary and there will be no permanent changes to the topography of the land. An existing access road will be used to access the Project location. No upgrades to the access road are anticipated.

### **2.4 Amount of Runoff**

Runoff volume generated from disturbed areas will be low to moderate and primarily dependent on pre-existing moisture conditions.

The runoff will be corrected with sediment barriers. Filter fabric fence will be installed down gradient of construction activities and soil stockpiles to minimize any accelerated sediment runoff; therefore, no permanent adverse effects are anticipated during construction.

### **2.5 Recycling and Disposal Methods**

Litter will be controlled by picking up the garbage at the end of each day. Any other debris that should arise will be collected at the end of the day.

### **2.6 Plan Drawings**

Erosion and Sediment control locations are provided on Figure 3. Best Management Practices (BMP) details and figures are provided on Figure 3.1.

## **3.0 CONSTRUCTION SEQUENCE**

### **3.1 General Construction Sequence**

This E&SCP is a standard plan used on-site and historically typical of E&SCPs submitted to County Conservation Districts. E&S control locations are shown on Figure 3. E&S control details are shown on Figure 3.1.

1. A copy of the E&SCP must be available at the Project site at all times.
2. At least three days prior to starting any earth disturbance activities, GAI will notify the Pennsylvania One Call System Incorporated at 1-800-242-1776.
3. Temporary sediment barriers, including appropriately sized filter fabric fence will be placed down slope of work areas and around stockpile locations prior to any excavation work to ensure, to the maximum extent practicable, that no significant erosion of native soils or sedimentation occurs.
4. Any water encountered within the Project area during construction will be removed by using pumps, hoses, and pumped water filter bags, and will be discharged to a well vegetated, upland area.
5. Earthwork and excavation may begin.

6. Waste or excess materials not suitable for the on-site stockpile or backfill shall be disposed of at a PaDEP-approved waste site. Materials will be re-used or recycled as possible, including topsoil and other materials, as appropriate. Any off-site stockpile/spoil piles shall be at a PaDEP-approved site with an approved E&S Plan.
7. Disturbed areas will be restored according to the seeding, mulch, and fertilizer specifications listed in Section 4.0, Best Management Practices.
8. Disturbed areas will be inspected after each runoff event. Temporary sediment barriers will be maintained, until perennial vegetation has become established with a uniform coverage of density of 70 percent or more within the disturbed ROW. Once this coverage has been obtained, filter fabric will be removed from the work area. Areas disturbed during the removal of the sediment barriers will be stabilized immediately.

## 4.0 BEST MANAGEMENT PRACTICES

### 4.1 BMP Installation and Removal Sequence

This is a typical installation and removal sequence for general excavation in upland areas. BMP locations are provided on Figure 3. BMP details are shown on Figure 3.1.

#### 1. Installation of the Filter Fabric Fence

The filter fabric fence shall be installed downslope of the disturbed work areas. The filter fabric fence shall be installed at existing level grade by using two-inch by two-inch wooden support stakes driven a minimum of 18 inches into the earth and spaced a maximum of eight feet apart. Both ends of each fence section shall be extended at least eight feet upslope at 45 degrees to the main fence alignment. The filter fabric fence shall remain in place until final stabilization is achieved.

#### 2. Revegetation

All disturbed areas will be seeded with plant species that have a high germination capacity within seven days after the excavated material is replaced. The disturbed soil will be conditioned to achieve moisture and temperature conditions that are conducive to rapid germination and growth.

Lime and fertilizer will be applied at recommended amounts according to the Penn State Agronomy Guide. Seeding will be performed with broadcast seeding equipment followed by a mulch covering. The following application rates will be used:

Item	Uplands	
Permanent Seed and Mulch Application Rates		
Seed <sup>1</sup>	Kentucky 31 Tall Fescue <sup>2</sup>	35 pounds per acre
Seed	Empire Birdsfoot Trefoil (1/2 Empire, 1/2 Viking)	10 pounds per acre of inoculated seed
Seed	Redtop (if Redtop is unavailable, use Timothy) <sup>2</sup>	2 pounds per acre
Seed	Annual Ryegrass <sup>2</sup>	7 pounds per acre
Lime	Agricultural Grade	6 tons per acre without a soil test
Fertilizer	10-20-20	1/2 ton per acre without a soil test
Mulch	Cereal Straw or Hydromatting-Bonded Fiber Matrix	3 tons per acre 3,000 to 4,000 pounds per acre <sup>3</sup>

Temporary Seed and Mulch Application Rates		
Seed	Annual Ryegrass	48 pounds per acre
Mulch	Cereal Straw	3 tons per acre

Notes:

- <sup>1</sup> All seed is pure live seed.
- <sup>2</sup> Annual ryegrass is utilized as a temporary cover crop.
- <sup>3</sup> Based upon manufacturer's specifications and topography.

#### 4.2 BMP Maintenance Plan

GAI personnel will be present during construction activities to inspect BMPs, at a minimum, weekly and within 24 hours after each measurable runoff event (greater than one-half-inch in 24 hours). BMP details are provided on Figure 3.1. BMPs will be maintained as follows:

- Damaged BMPs will be repaired or replaced as soon as practicable, but no more than 72 hours after discovering damage.
- Equipment, soil stockpiles and other materials are to remain upslope of BMPs during maintenance activities.
- Stockpile slopes will be 2:1 or flatter and stockpiles will not exceed 35 feet in height.
- Sediment will be removed from filter fabric fence, once accumulations have reached one-half the above ground height of the fence.
- Filter bags will be replaced once they are half full.
- Pumped water filter bags will be inspected daily. If a problem is detected, pumping shall cease immediately and not resume until the problem is corrected.
- Any section of the filter fabric fence that has been topped or undermined by natural forces will be replaced as soon as practicable, but no more than 72 hours after discovering damage.
- At the end of each construction day, all sediment deposited on paved roadways shall be removed and returned to the construction site.
- Sediment will be removed and placed in an upland construction area, spread out, and revegetated by seeding and mulching or disposed of. All waste or excess materials not suitable for the on-site stockpile shall be disposed of at a PaDEP-approved waste site. Materials will be re-used or recycled as possible, including topsoil and other materials as appropriate. Any off-site stockpile/spoil piles shall be at a PaDEP approved site with an approved E&S Plan.

GAI personnel will be responsible for the maintenance of the work area, once final stabilization has taken place.

Work will be performed according to the Preparedness, Prevention, and Contingency Plan for Construction Activities provided in Appendix A.

## 5.0 REFERENCES

- Pennsylvania Department of Conservation and Natural Resources, Bureau of Topographic Geologic Survey. 2006. *PAMAP Program LIDAR Processing/Contour Enhancement Lines of Pennsylvania*. <http://www.pasda.psu.edu/default.asp>.
- Pennsylvania Department of Environmental Protection, Office of Water Management. 2000. *Erosion and Sediment Pollution Control Program Manual*. Bureau of Watershed Management, Division of Waterways, Wetlands and Erosion Control. April 15, 2000.
- United States Department of Agriculture, Natural Resources Conservation Service. 2005. *Soil Survey Geographic (SSURGO) Database for Allegheny County, Pennsylvania*. Fort Worth, Texas.
- United States Department of Agriculture, Soil Conservation Service. 2000. *Soil Survey of Allegheny County, Pennsylvania*. Washington, DC.
- United States Geological Survey Topographic Quadrangle (7.5-Minute Series). 1990. *Ambridge, Pennsylvania* (1:24,000).

## **APPENDIX A**

### **PREPAREDNESS, PREVENTION, AND CONTINGENCY PLAN FOR CONSTRUCTION ACTIVITIES**

## **APPENDIX A**

### **PREPAREDNESS, PREVENTION, AND CONTINGENCY PLAN FOR CONSTRUCTION ACTIVITIES**

#### **SPILL PREVENTION METHODS**

Construction activities related to archeological digs sometimes require storage of hazardous and non-hazardous products and wastes. All efforts will be made to prevent spills of any amount of these products. The scope of this plan is intended to cover activities related to construction of archeological digs. The following items will be followed to help avoid spills and minimize the impact of spills that accidentally occur:

- Bulk quantities of both diesel fuel and gasoline may be stored at the work area in aboveground tanks, which will be diked or be of double-wall secondary containment design, or smaller containers. No underground tanks will be used. A Material Safety Data Sheet for each hazardous material will be on site.
- Fuel will be stored at the equipment staging area within secondary containment and as much as practical all equipment will be refueled there. Any equipment that must be refueled in the field will be fueled from tanks carried to the work area.
- Lesser quantities of fuel and solvents and lubricants (i.e., motor oils, hydraulic fluid) may be stored at the work area as necessary to service equipment provided that this storage does not conflict with other parts of this plan. Secondary containment will be provided for these storage areas.
- All fuel storage areas will be located at least 200 feet from active private water wells, and at least 400 feet from municipal water wells. Equipment servicing, lubricating, and refueling will also be in accordance with these requirements whenever possible.
- Use of hazardous materials for vehicle maintenance will follow the same requirements mentioned above for equipment refueling. Impervious or sorbent materials will be placed under the work area before the work begins. Additional sorbent materials will also be readily available. Waste materials created during maintenance (i.e., used oil) will be collected for proper disposal. The work site and the vehicle will be inspected after the maintenance work is complete to ensure that all hazardous materials are properly contained. All waste material, including partially used or empty containers, discarded parts, dirty rags, and used sorbent material, as well as discarded hazardous materials containers (i.e., oil cans, grease tubes) will be collected and placed in open-top drums for proper disposal.
- All motor fuel, lube oil, chemicals, and other polluting substances will be tightly sealed and clearly labeled during transportation and storage.
- Fuel trucks, pumps, mechanics' vehicles, and contractor personnel vehicles will be equipped with spill kits containing absorbent materials approved for petroleum products.
- Runoff resulting from construction equipment washing operations will not be permitted to directly enter any waterbody or wetland area.

- Construction equipment, vehicles, materials, hazardous materials, chemicals, fuels, lubricating oils, and petroleum products will be parked, stored, or serviced 100 feet from all waterbodies and wetlands when not in use and when possible.
- Any materials, equipment, hazardous materials, chemicals, fuels, lubricating oils, and petroleum products that must be used within 100 feet of a waterbody or wetland to support the work will only be used within the secondary containment protection and will be stored within temporary secondary containment during work hours. No materials, hazardous materials, chemicals, fuels, lubricating oils, or petroleum products that are not contained within equipment will be stored within 100 feet of a waterbody or wetland. All other sections of this plan will be followed for spill prevention and mitigation and cleanup methods.

## **MITIGATION AND CLEANUP METHODS**

In the event of a spill into or in the vicinity of waterbodies or wetlands, the following will occur:

- the source will be immediately stopped;
- the spill will be contained by placing sorbent booms or constructing dikes;
- the spill will be collected with sorbent materials, skimmed off water surfaces with booms, and/or the contaminated soil will be excavated; and
- the waste materials will be properly disposed in accordance with state and federal requirements.

The affected areas will be restored as closely as possible to their previous condition. All spills must be reported immediately to AEROSTAR:

Mr. Rick Levin, PG, Senior Project Manager      904-565-2820 (office)  
352-214-3110 (cell)

The Environmental Department will contact State and/or Federal environmental agencies (if applicable) for notification requirements. If personnel in the Environmental Department cannot be contacted, then the AEROSTAR Project Manager should make the necessary notifications.

## **STATE AND FEDERAL AGENCY CONTACT INFORMATION**

### **Pennsylvania**

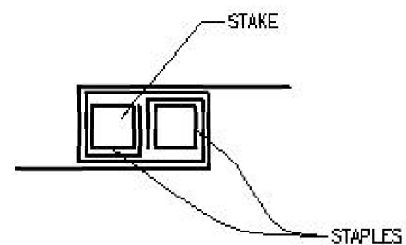
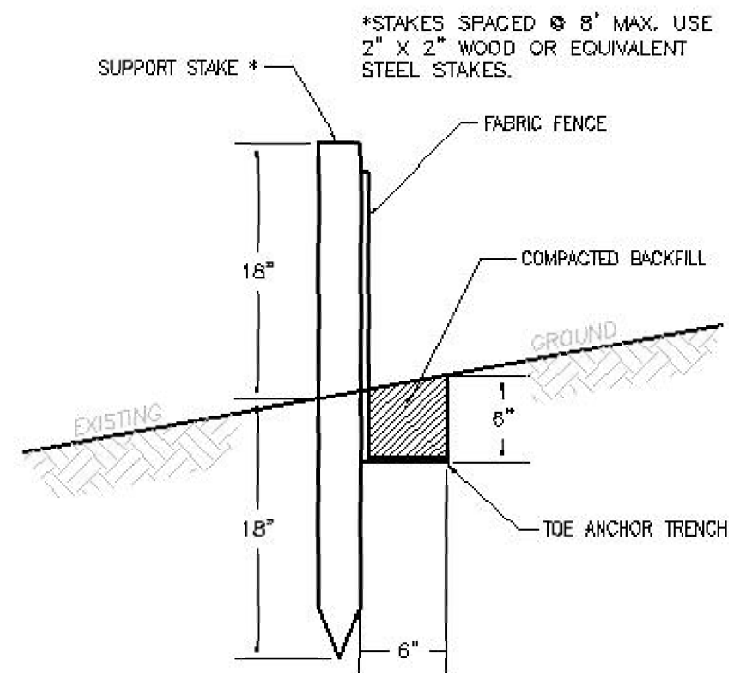
- PaDEP Central Office (Harrisburg): 800-541-2050  
(available 24 hours a day, seven days per week)
- PaDEP Southwestern Regional Office: 412-442-4000
- Allegheny County Emergency Management Coordinator: 412-473-2550

### **Federal**

- National Response Center: 800-424-8802







### JOINING FENCE SECTIONS

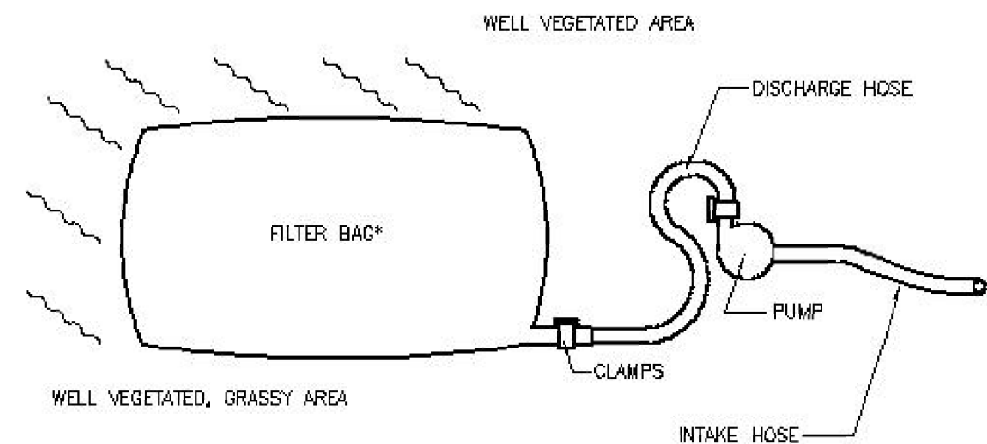
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#### NOTES:

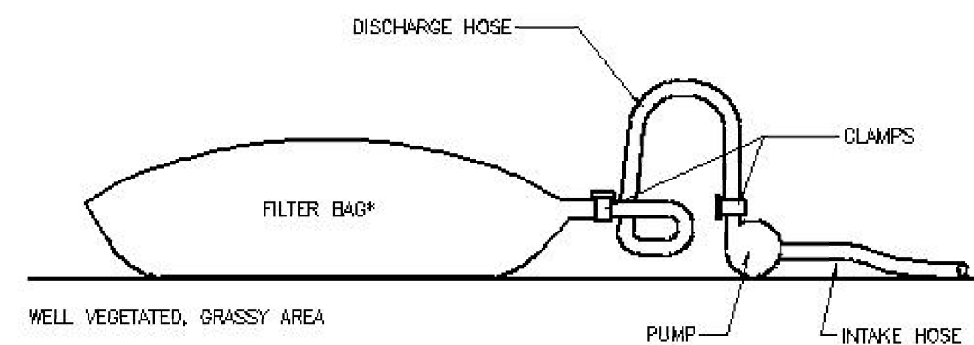
1. FILTER FABRIC FENCE MUST BE INSTALLED AT LEVEL EXISTING GRADE. BOTH ENDS OF EACH FENCE SECTION MUST EXTEND AT LEAST 8 FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT.
2. SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH  $\frac{1}{2}$  THE ABOVE GROUND HEIGHT OF THE FENCE.
3. ANY FENCE SECTION WHICH HAS BEEN UNDERMINED OR TOPPED MUST BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET.

### STANDARD FILTER FABRIC FENCE, 18" HEIGHT

SCALE: N.T.S.



### PLAN VIEW



### ELEVATION VIEW

### PUMPED WATER FILTER BAG

N.T.S.

# DRAFT

FIGURE 3.1  
EROSION AND SEDIMENTATION  
CONTROL STANDARD DETAILS



AEROSTAR ENVIRONMENTAL  
SERVICES, INC.  
UPPER OHIO NAV STUDY

BY: MDO

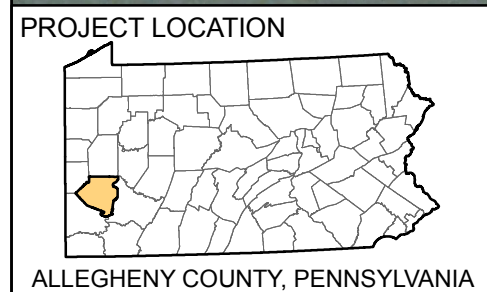
DATE: 07/09/2009

CHECKED: KPR

APPROVED: ADS







REFERENCE: PAMAP  
PROGRAM, PA DCNR, HIGH  
RESOLUTION COLOR ORTHO-  
IMAGES, 2006.

#### LEGEND

- 2-FT CONTOUR
- APPROXIMATE CENTERLINE LOCATION
- SILT FENCE
- LIMITS OF DISTURBANCE

0 50 100 200  
Feet

#### FIGURE 3 EROSION AND SEDIMENTATION CONTROL PLAN



AEROSTAR ENVIRONMENTAL  
SERVICES, INC.  
UPPER OHIO NAV STUDY

BY: MDO

DATE: 07/09/2009

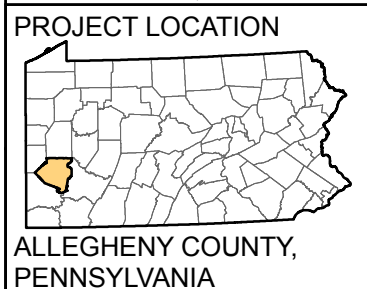
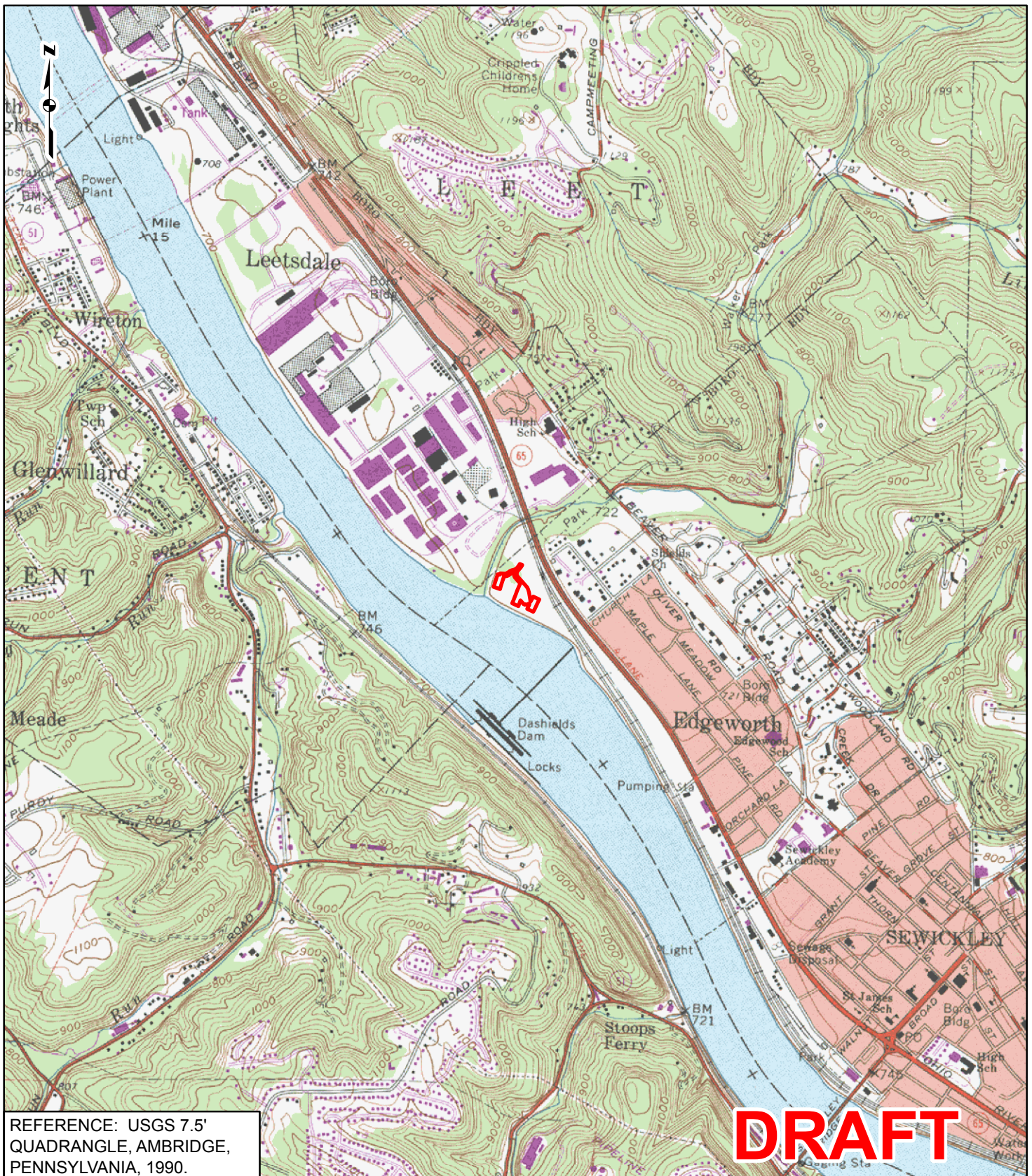
CHECKED: KPR

APPROVED: ADS









### LEGEND

 LIMITS OF DISTURBANCE

0 1,000 2,000 4,000 Feet

### FIGURE 1 PROJECT LOCATION MAP



AEROSTAR ENVIRONMENTAL  
SERVICES, INC.  
UPPER OHIO NAV STUDY

DRAWN BY: MDO  
CHECKED: KPR

DATE: 07/09/2009  
APPROVED: ADS















## 1. PROJECT INFORMATION

Project Name: **Upper Ohio Nav Study**

Date of review: **7/7/2009 4:39:07 PM**

Project Category: **Development, Other**

Project Area: **13.7 acres**

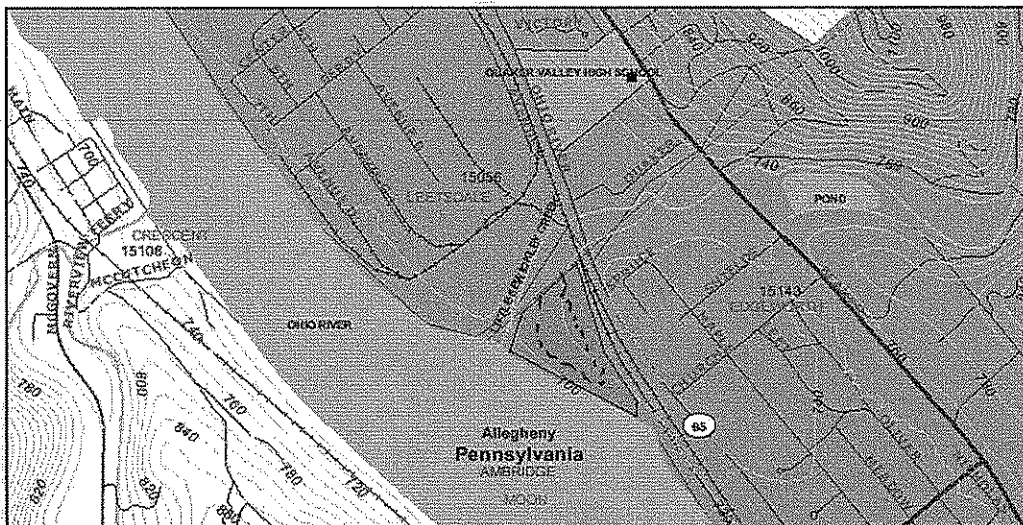
County: **Allegheny** Township/Municipality: **Edgeworth**

Quadrangle Name: **AMBRIDGE**

ZIP Code: **15143**

Decimal Degrees: **40.55291 N, --80.2026 W**

Degrees Minutes Seconds: **40° 33' 10.5" N, -80° 12' 9.4" W**



## 2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
U.S. Fish and Wildlife Service	Conservation Measure	No Further Review Required, See Agency Comments

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

### 3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for one year** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt.

#### PA Game Commission

**RESPONSE:** No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

#### PA Department of Conservation and Natural Resources

**RESPONSE:** No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

#### PA Fish and Boat Commission

##### PFBC Species:

**Scientific Name:** *Alosa chrysochloris*

**Common Name:** Skipjack Herring

**Current Status:** Threatened

**Proposed Status:** Threatened

**Scientific Name:** *Leptodea fragilis*

**Common Name:** Fragile Papershell

**Current Status:** Special Concern Species\*

**Proposed Status:** Special Concern Species\*

**Scientific Name:** *Potamilus alatus*

**Common Name:** Pink Heelsplitter

**Current Status:** Special Concern Species\*

**Proposed Status:** Special Concern Species\*

**Scientific Name:** *Villosa iris*

**Common Name:** Rainbow Mussel

**Current Status:** Special Concern Species\*

**Proposed Status:** Endangered

**RESPONSE:** Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

## U.S. Fish and Wildlife Service

**RESPONSE:** Conservation Measure: Voluntary implementation of the following recommendations will contribute to the conservation and recovery of endangered and threatened species. -- In order to maintain or improve water quality for endangered aquatic species, retain (or restore, if not already present) a 100- to 300-foot wide buffer on each side of the waterway (river, stream, creek) or waterbody (lake). Avoid construction, earth disturbance, and chemical application in this buffer. The buffer should be vegetated with native plant species. When adequately vegetated, this upland buffer will act to stabilize the streambanks (preventing or minimizing erosion), and filter pollutants (e.g., sediment, fertilizers, pesticides, road salt, oil). Where streambanks have become badly eroded (e.g., due to removal of native riparian vegetation), streambank fencing and/or bioengineering restoration techniques are recommended (geotextile, root wads, vegetative stabilization), rather than riprapping the streambanks; removing gravel bars; or attempting to dredge, ditch, channelize, or widen the stream.

\* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.

\*\* Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

## WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

### Check-list of *Minimum* Materials to be submitted:

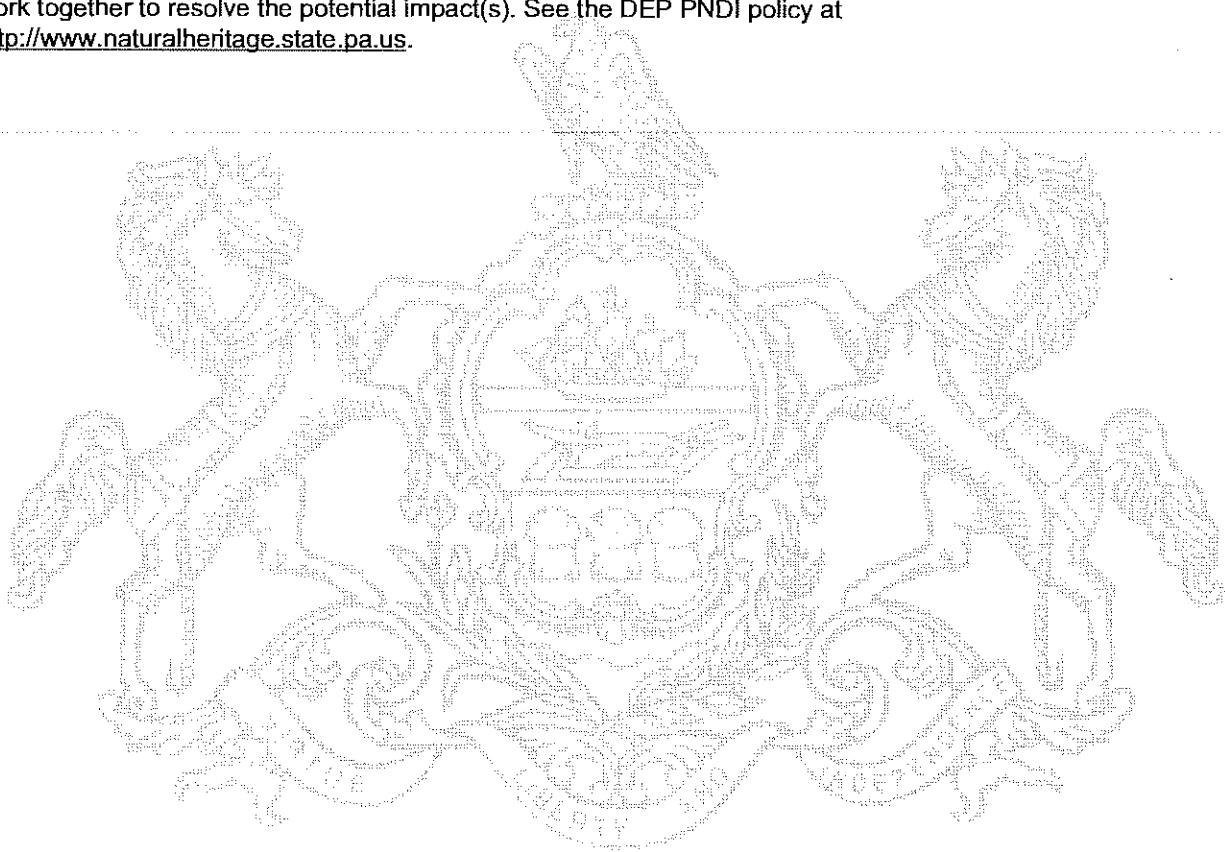
- \_\_\_\_ **SIGNED** copy of this Project Environmental Review Receipt
- \_\_\_\_ Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
- \_\_\_\_ Project location information (name of USGS Quadrangle, Township/Municipality, and County)
- \_\_\_\_ USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

### **The inclusion of the following information may expedite the review process.**

- \_\_\_\_ A basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
- \_\_\_\_ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
- \_\_\_\_ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams
- \_\_\_\_ The DEP permit(s) required for this project

#### 4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt, a completed PNDI form and a USGS 7.5 minute quadrangle map with the project boundaries delineated on the map. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <http://www.naturalheritage.state.pa.us>.



## 5. ADDITIONAL INFORMATION

The PNDI environmental review website is a **preliminary** screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page ([www.naturalheritage.state.pa.us](http://www.naturalheritage.state.pa.us)). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

## 6. AGENCY CONTACT INFORMATION

### PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section  
400 Market Street, PO Box 8552, Harrisburg, PA.  
17105-8552  
Fax: (717) 772-0271

### U.S. Fish and Wildlife Service

Endangered Species Section  
315 South Allen Street, Suite 322, State College, PA.  
16801-4851  
NO Faxes Please.

### PA Fish and Boat Commission

Division of Environmental Services  
450 Robinson Lane, Bellefonte, PA. 16823-7437  
NO Faxes Please

### PA Game Commission

Bureau of Wildlife Habitat Management  
Division of Environmental Planning and Habitat Protection  
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797  
Fax: (717) 787-6957

## 7. PROJECT CONTACT INFORMATION

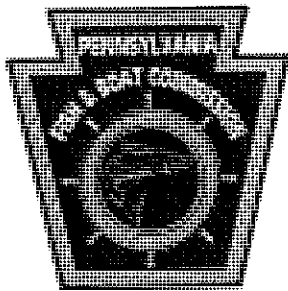
Name: KEVIN RESNIK  
Company/Business Name: GAI CONSULTANTS, INC  
Address: 385 EAST WATERFRONT DRIVE  
City, State, Zip: HOMESTEAD, PA 15212  
Phone: ( 412 ) 476-2000 Fax: ( 412 ) 476-2020  
Email: K.RESNIK@GAICONSULTANTS.COM

## 8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

KR  
applicant/project proponent signature

7/8/09  
date



established 1866

# Pennsylvania Fish & Boat Commission

RECEIVED  
AUG 14 2009

Division of Environmental Services  
Natural Diversity Section  
450 Robinson Lane  
Bellefonte, PA 16823-9620  
(814) 359-5237 Fax: (814) 359-5175

GAI CONSULTANTS INC.  
PROJ. NO C070839.03

August 13, 2009

IN REPLY REFER TO  
SIR # 32308

BRIAN CLAUTO  
GAI CONSULTANTS  
385 EAST WATERFRONT DRIVE  
HOMESTEAD, PA 15120-5005

RE: Species Impact Review (SIR) - Rare, Candidate, Threatened and Endangered Species  
UPPER OHIO NAVIGATION STUDY  
PNDI Search Number (if available): 20090707200759  
EDGEWORTH Township/Borough, ALLEGHENY County, Pennsylvania

This responds to your inquiry about a Pennsylvania Natural Diversity Inventory (PNDI) Internet Database search "potential conflict" or a threatened and endangered species impact review. These projects are screened for potential conflicts with rare, candidate, threatened or endangered species under Pennsylvania Fish & Boat Commission jurisdiction (fish, reptiles, amphibians, aquatic invertebrates only) using the Pennsylvania Natural Diversity Inventory (PNDI) database and our own files. These species of special concern are listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, and the Pennsylvania Fish & Boat Code (Chapter 75), or the Wildlife Code. The absence of recorded information from our files does not necessarily imply actual conditions on site. Future field investigations could alter this determination. The information contained in our files is routinely updated. A Species Impact Review is valid for one year only.

X **NO ADVERSE IMPACTS EXPECTED FROM THE PROPOSED PROJECT**

Except for occasional transient species, rare, candidate, threatened or endangered species under our jurisdiction are not known to exist in the vicinity of the project area. Therefore, no biological assessment or further consultation regarding rare species is needed with the Commission. Should project plans change, or if additional information on listed or proposed species becomes available, this determination may be reconsidered.

X An element occurrence of a rare, candidate, threatened, or endangered species under our jurisdiction is known from the vicinity of the proposed project. However, given the nature of the proposed project, the immediate location, or the current status of the nearby element occurrence(s), no adverse impacts are expected to the species of special concern.

If you have any questions regarding this review, please contact the biologist indicated below:

<u>      </u> Chris Urban      814-359-5113	<u>      </u> Tina Walther      814-359-5186
<u>X</u> Nevin Welte      412-586-2334	<u>      </u> Bob Morgan      814-359-5129

I am enclosing a copy of our "SIR Request Form", which is to be used for all future species impact review requests. Please make copies of the attached form and use with all future project reviews. Thank you in advance for your cooperation and attention to this important matter of species conservation and habitat protection.

SIGNATURE: \_\_\_\_\_

Christopher A. Urban  
Chief, Natural Diversity Section

DATE: August 13, 2009

## Our Mission:

[www.fish.state.pa.us](http://www.fish.state.pa.us)

*To protect, conserve and enhance the Commonwealth's aquatic resources and provide fishing and boating opportunities.*

COMMONWEALTH OF PENNSYLVANIA  
**FISH AND BOAT COMMISSION**  
 NATURAL DIVERSITY SECTION  
**SPECIES IMPACT REVIEW (SIR) REQUEST FORM**

A. This form provides the site information necessary to perform a computer database search for species of special concern listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, the Pennsylvania Fish and Boat Code or the Wildlife Code.

B. Use only *one form* for each proposed project or location. Complete the information below and mail form to:

Natural Diversity Section  
 Division of Environmental Services  
 PA Fish and Boat Commission  
 450 Robinson Lane  
 Bellefonte, PA 16823

C. This form, a cover letter including a project narrative, and accompanying maps should be sent to the above address for environmental reviews that *only* concern *reptiles, amphibians, fishes and aquatic invertebrates*. Reviews for other natural resources must be submitted to other appropriate agencies.

D. The absence of recorded information from our databases and files does not necessarily imply actual conditions on site. Future field investigations could alter this determination. The information contained in our files is routinely updated. A review is valid for one year.

E. *Please send us only one (1) copy of your request* – either by fax or by mail – not both. Mail is preferred to improve legibility of maps. Facsimile submission will not improve our response turn-around time.

F. *Allow 30 days for completion of the review from the date of PFBC receipt*. Large projects and workload may extend this review timeframe.

G. *In any future correspondence with us following your receipt of the SIR response, please refer to the assigned SIR number at the top left of our cover letter.*

H. **FORMS THAT ARE NOT COMPLETED IN FULL WILL NOT BE REVIEWED.**

**PLEASE PRINT OR TYPE:** If available, provide the potential conflict PNDI Search Number: \_\_\_\_\_

PFBC response should be sent to:

Company/Agency: \_\_\_\_\_ Form Preparer: \_\_\_\_\_

Address: \_\_\_\_\_

Phone (8:00 AM to 4:00 PM): \_\_\_\_\_

Project Description: \_\_\_\_\_

Indicate if the project is: Transportation ☐ or Non-transportation ☐ (check one)

Will the proposed project encroach directly or indirectly (e.g., runoff) upon wetlands or waterways? Circle one for each:

Wetlands: Yes No Unknown Waterways: Yes No Unknown

County: \_\_\_\_\_ Township/Municipality: \_\_\_\_\_

Name of the United States Geological Survey (U.S.G.S.) 7.5 Minute Quadrangle Map where project is located: \_\_\_\_\_

Project size (in acres): \_\_\_\_\_

Attach an 8.5" by 11" photocopy (**DO NOT REDUCE**) of the section of the U.S.G.S. Quadrangle Map which identifies the project location. On this map, indicate the location of the project center (if linear, depict both ends) and outline the approximate boundaries of the project area.

Specify latitude/longitude of the project center.

**Latitude:** \_\_\_\_\_ ° / \_\_\_\_\_ ' / \_\_\_\_\_ " N

Indicate latitude/longitude in degrees-minutes-seconds format only.

**Longitude:** \_\_\_\_\_ ° / \_\_\_\_\_ ' / \_\_\_\_\_ " W

Three steps are needed to convert from decimal degrees to degrees-minutes-seconds: (1) Degrees will be the whole number. (2) To get minutes, multiply the decimal degree portion by 60. (3) Multiply the decimal minute portion by 60 to get seconds.  
 Example: (Latitude)  $40.93748 = 40^{\circ}$ ;  $0.93748 \times 60 = 56.2488' = 56'$ ;  $0.2488 \times 60 = 14.928 = 15'' = 40^{\circ}56'15''$  N  
 (Longitude)  $75.94740 = 75^{\circ}$ ;  $0.94740 \times 60 = 56.844' = 56'$ ;  $0.844 \times 60 = 50.64 = 51'' = 75^{\circ}56'51''$  W

**FOR PFBC USE ONLY**

SIR#	Quad Name	Data Source	Search Result-Potential Species Conflict	Action

July 17, 2009

Project C070839.03

Pennsylvania Fish and Boat Commission  
Division of Environmental Services  
450 Robinson Lane  
Bellefonte, Pennsylvania 16823-7437

PNDI Number 20090707200759  
Threatened and Endangered Species Consultation  
Upper Ohio Navigation Study  
Aerostar Environmental Services, Inc.  
Allegheny County, Pennsylvania

Dear Sir or Madam:

On behalf of Aerostar Environmental Services, Inc (Aerostar), GAI Consultants, Inc. (GAI) is requesting a review of the Upper Ohio Navigation Study (Project) in Edgeworth Borough, Allegheny County, Pennsylvania. The project involves a feasibility study to modernize three U.S. Army Corps of Engineers (USACE) lock and dam structures on the Ohio River. Project activities include archaeological investigations at the Dashields Lock and Dam (Dashields L&D) primary storage area located northeast of the town of Edgeworth. The Project area is shown on the attached Project Location Map (Attachment 1). A copy of the Project's Pennsylvania Natural Diversity Inventory Project Environmental Review Form (Attachment 2) is included for reference.

The Project area is located in an upland area north of Dashields L&D that was previously used for disposal of industrial fill (slag) and demolition debris. Photos of the area are contained in Attachment 3. No streams or wetlands were identified within the study area at this location. Existing public and private roads will be used for access during Project activities.

Project activities at Dashields L&D include drilling a series of four-inch-diameter boreholes through the industrial fill material to determine whether the potential exists for any prehistoric or historic resources on the site that may be eligible for inclusion on the National Register of Historic Places. These activities will be conducted as part of the environmental impact statement under the National Environmental Policy Act.

A preliminary search was conducted using the Pennsylvania Natural Diversity Inventory Environmental Project Planning Database, which resulted in "Potential Impact" under the Pennsylvania Fish and Boat Commission's jurisdiction within the project area. Potential impacts include the following aquatic species: Skipjack Herring (*Alosa chrysochloris*); Fragile Papershell (*Leptodea fragilis*); Pink Heelsplitter (*Potamilus alatus*); and Rainbow Mussel (*Villosa iris*). The U.S. Fish and Wildlife Service recommended a voluntary conservation measure to maintain, at minimum, a 100-foot vegetated buffer between the project work area and adjacent water resources. No additional potential impacts were identified under the PNDI review.

Aerostar will implement a project-specific Erosion and Sedimentation Control Plan (E&SCP) during Project activities and will maintain an approximate 100-foot-wide vegetated buffer between the Project area and adjacent water resources. A copy of the E&SCP is included as Attachment 4.

Following implementation of the E&SCP and by maintaining a vegetated buffer between the project area and adjacent water resources, it is anticipated that Project activities will not result in any impacts to aquatic species of concern.



Please contact either Mr. Brian Clauto or me at 412-476-2000, should you have any questions or require additional information.

Respectfully submitted,  
GAI Consultants, Inc.

George Reese, C.E.  
Environmental Manager

GTR:bmc

cc: Rick Levin, Aerostar

Attachments



*Photo 1: view Northwest*



*Photo 2: View North*



*Photo 3: View Northeast near entrance*

**APPENDIX F**  
**GAI PROJECT PERSONNEL RESUMES**



# Lori A. Frye, M.A., RPA

## Lead Archaeologist

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### Education

1976 B.A. University of Pittsburgh, Anthropology Department, emphasis Archaeology  
1982 M.A. Western Kentucky University, Folk Studies Department, emphasis Historic Preservation  
1992 M.A. Arizona State University, Anthropology Department, emphasis Archaeology

### Certification

Registered Professional Archaeologist (RPA)

### Areas of Specialization

Ms. Frye exceeds the minimum Secretary of Interior's Standards for a prehistoric archaeologist. She has dual masters' degrees, and more than 25 years' extensive experience in Southwest Pennsylvania and the Upper Ohio River Valley region, along with projects in Maryland, Virginia, West Virginia, and Ohio. Ms. Frye served as the Government Principal Investigator for the Leetsdale project and, as a result, has experience: (1) working with multiple contractors working on a stratified site along the Ohio River; (2) reviewing regional lithic and ceramic analysis, as well as faunal, paleoethnobotanical, geomorphological, and spatial analyses associated with this project. Ms. Frye also reviewed draft reports for three separate contractors for the Leetsdale site excavations( Area 1, Area 2, and Area 3), which were submitted by the contractors to the Pittsburgh District. Ms. Frye's current duties also entail managing fieldwork with multiple contractors; i.e., ongoing PI/PM duties at Fort Campbell with field crews from multiple firms, coordinating efforts with Fort Campbell, USCOE Louisville, and Aerostar and report preparation.

### Historical Archaeology Teaching Experience

Adjunct Faculty, Mt. St. Mary's College, History Department, Emmittsburg, Maryland  
Fall 1999 Industrial Archaeology  
Winter 2000 Industrial Archaeology Lab  
Fall 2001 Historical Archaeology

### Project Manager/Principal Investigator (Sample of Projects)

#### 2009

- Principal Investigator. Data Recovery Plan: Site 18Cv474, Calvert Cliffs Nuclear Power Plant, Calvert County, Maryland, for UniStar Nuclear Development, LLC.
- Co-Principal Investigator. Phase I Cultural Resources Investigations and Phase II National Register Site Evaluations, Calvert Cliffs Nuclear Power Plant, Calvert County, Maryland, for UniStar Nuclear Development, LLC.
- Project Manager/Principal Investigator. Phase II Investigations of the Dun Glen Hotel Site for the Fire Suppression System, Fayette County, West Virginia, for National Park Service-NERI.

#### 2008

- Principal Investigator. Phase I Cultural Resources, Pursley Transmission Line, Center Township, Greene County, Pennsylvania, for Allegheny Power.
- Principal Investigator, Phase Ib/II Archaeological Investigations, Fairmont to I-79 Gateway Corridor and Interchange, Alternatives A and A1, City of Fairmont, Marion County, West Virginia, for HNTB and WVDOH.
- Principal Investigator. Cultural Resource Investigations, Naval Recreation Center, Calvert County, Solomons, Maryland. Client: TetraTech NUS, Inc.

- Principal Investigator, Phase I/II Archaeological Investigations, North Shore Connector Project, City of Pittsburgh, Allegheny County, Pennsylvania. Client: North Shore Constructors (Obabyashi/Trumbull JV) and Port Authority of Allegheny County.
- Principal Investigator, Phase I Archaeology and Geomorphology Survey, Proposed 502 Junction Substation, Trans-Allegheny Interstate Line, Dunkard Township, Greene County, Pennsylvania. Client: Power Engineers, Inc., Hailey, Idaho.

## 2007

- Lead Archaeologist, Phase IA Archaeological and Architectural Reconnaissance, M.P. 149.5-155.5, Preliminary Design, Bedford County, Pennsylvania, for Pennsylvania Turnpike Commission.
- Phase III Data Recovery Excavations at Site 18Cv151 Calvert County, Maryland, Cove Point Expansion Project. Report prepared for Dominion Transmission, Inc., Clarksburg, West Virginia.
- Fort Ethan Allen Cultural Landscape Documentation Report, Arlington, Virginia. Client: Arlington Heritage Alliance, Arlington, Virginia.
- Archaeological Data Recovery at Nuttallburg Mine Conveyor, New River Gorge National River, Fayette County, West Virginia. Client: National Park Service, Denver Service Center, Denver, Colorado.
- Phase I Cultural Resource Survey and Geomorphology Investigation for Proposed O-1821 New Pipeline Project, Cambridge, Guernsey County, Ohio. Client: Columbia Gas Transmission, Charleston, West Virginia.

## 2006

- Phase IB Archaeological Survey for the Proposed Westmoreland Distribution Park II, Parcel B, East Huntingdon and Hempfield Townships, Westmoreland County, Pennsylvania. Client: Westmoreland County Industrial Development Corporation, Greensburg, Pennsylvania.
- Phase I Cultural Resource Survey, Proposed SL 2057/SL 2492 Pipeline Replacement Project, Lagrange and Lagrange Township, Lorain County, Ohio. Client: Columbia Gas Transmission.
- Phase I Archaeological Survey for the Proposed D-36 Pipeline Replacement Project, New Riegel, Seneca County, Ohio. Report prepared for Columbia Gas Transmission, Charleston, West Virginia.

## 2005

- Phase Ib Archaeological Survey, 189-acre Parcel within Proposed Westmoreland Distribution Park, East Huntingdon Township, Westmoreland County, Pennsylvania. Client: Westmoreland County Industrial Development Corporation, Greensburg, Pennsylvania.
- Phase I Archaeological Survey, Westmoreland Technology Park, Phase 2, Lot 19, Hempfield Township, Westmoreland County, Pennsylvania. Client: Westmoreland County Industrial Development Corporation, Greensburg, Pennsylvania.
- Phase I Archaeological Survey, Cove Point Expansion Project, PL-1 Natural Gas Pipeline Replacement Section, Hamilton Township, Franklin County, Pennsylvania. Client: Dominion Transmission, Inc., Clarksburg, West Virginia.
- Phase I Archaeological Survey for Proposed SR-513 Pipeline, Salt Creek Township, Hocking County, Ohio. Client: Columbia Gas Transmission, Charleston, West Virginia.
- Phase IA Cultural Resources Investigation, AEP IGCC Plant Siting Studies, Ohio, West Virginia, and Kentucky. Client: American Electric Power.
- Phase II Cultural Resource Assessment, Site 36Ju117, Petersheim Site, Cove Point Expansion Project, Perulack Compressor Station, Juniata County, Pennsylvania. Client: Dominion Transmission, Inc., Clarksburg, West Virginia.
- Phase I Cultural Resource Survey, Proposed SL 2057/SL 2492 Pipeline Replacement Project, Lagrange and Lagrange Township, Lorain County, Ohio. Client: Columbia Gas Transmission in 2006.
- Phase I Cultural Resource Survey, Proposed E-460 Pipeline Replacement Project, Starr Township, Hocking County, Ohio. Client: Columbia Gas Transmission in 2005.

- Phase IA Cultural Resources Investigation, AEP IGCC Plant Siting Studies, Ohio, West Virginia, and Kentucky. Client: American Electric Power in 2005
- Phase IB Archaeological Investigation, Proposed IGCC Mountaineer Plant Site, Mason County, West Virginia. Client: American Electric Power in 2005
- Phase I Survey E-2 Pipeline Replacement, Starr Township, Hocking County, Ohio. Client: Columbia Gas Transmission in 2005.
- Phase I Survey for SR 513 Pipeline Replacement, Salt Creek Township, Hocking County, Ohio. Client: Columbia Gas Transmission in 2005.
- Phase I Survey, Westmoreland Technology Park, Phase 2, Lot 19, Hempfield Township, Westmoreland County, PA. Client: Westmoreland County Industrial Development Corporation, Greensburg, Pennsylvania in 2005.
- Phase I and Phase II Investigations at Site 36Ju117, Cove Point Expansion Project, Perulack Compressor Station, Juniata County, Pennsylvania. Client: Dominion Transmission, Inc., Clarksburg, West Virginia in 2005.

*Principal Investigator (Report Author)*

- Phase III Archaeological Investigations for the Proposed Norfolk Southern Railway Company's Saltsburg to Clarksburg Rail Line, Armstrong Township, Indiana County, Pennsylvania: The Reed Site. Client: Norfolk Southern Railway Company in 2005.

## 2004

- Phase I Survey, Grading Area and Haul Road Project. Client: Westmoreland County Industrial Development Corporation, Westmoreland County, PA.
- Phase I Survey, BBH Site Location. Client: Kanawha Eagle Coal, Cabin Creek District, Kanawha County, West Virginia
- Phase IA Survey, Westmoreland Distribution Park Phase 2. Client: Westmoreland County Industrial Development Corporation, Westmoreland County, PA
- Phase I Survey, Cove Point Expansion Project, 40 Mile Transmission Line. Client: Dominion Transmission, Inc., St. Mary's, Charles, and Prince George Counties, Maryland.
- Phase I Survey, Pipeline Corridor Project. Client: Great Lakes Energy Partners Pipeline Project, Oakland and Plum Townships, Venango County, Pennsylvania.
- Phase I Survey, Pipeline Corridor Project. Client: Great Lakes Energy Partners Pipeline Project Cornplanter Township, Venango County, Pennsylvania.
- Phase I Survey, Sewerline Survey Project. Client: Senate Engineering, Mahoning Township, Armstrong County, Pennsylvania.
- Phase I Survey, Sewerline Survey Project. Client: Dana R. Boob Surveying and Engineering, Brockway Area Sewer Authority Project Horton Township, Snyder Township, and Brockway Borough, Elk and Jefferson County, Pennsylvania
- Phase I Survey, Sewer Facilities Project. Client: Hill Engineering, Inc., Borough of Ellwood City, Wayne Township, Lawrence County, Pennsylvania.
- Phase I Survey, Sewerline Survey Project. Client: Stiffler, McGraw and Associates, Inc., Frankstown Township Blair County, Pennsylvania.
- Phase I Survey, Trails End Re-Entry Project. Client: USDA, Allegheny National Forest, Wetmore and Hamlin Townships, McKean County, Pennsylvania.
- Phase I Archaeological Investigations and Historical Structure Investigations. Client: Bentworth School District, Somerset Township, Washington County, Pennsylvania.
- Phase I Survey, Allegheny Portage Trace Trail Corridor (6-10). Client: National Park Service, Allegheny Portage National Historic Site, Gallitzin, Pennsylvania.



## Project Manager/Principal Investigator, 1994-2003 Examples

- Report on Archaeological Excavations, Wager Farmstead Site 36Mg307, Pennsylvania Act 70 Project, Pennsylvania Bureau for Historic Preservation, Montgomery County, PA.
- Effects Report and Recommended Data Recovery Plan, Site 36AL480, Locks and Dams 2, 3, and 4, Monongahela River Project, Leetsdale, Allegheny County, Pennsylvania, US Army Corps of Engineers, Pittsburgh District (co-author).
- Reassessment of Archaeological Sites, Falls Lake Reservoir Cultural Resources Planning Project, US Army Corps of Engineers, Wilmington District, Durham, Granville, and Wake Counties, NC. .
- Archaeological Survey and Excavation at Site 46Jf245, a Civil War encampment, Cranes Meadow Housing Development Project, Cranes Meadow Limited Partnership, Jefferson County, WV.
- Phase I Survey, Furnace Town Historic Site Visitor's Center Project, Furnace Town Foundation, Inc., Worcester County, MD. Determination of Eligibility Assessments, Bluestone Dam and County Route 23, Horizon Research Consultants, Summers County, WV
- Phase I/II Archaeological Investigations at Fenby Farm Quarry and Lime Kiln Site (18Cr163/CARR 260), Westminster, Carroll County, MD.
- Phase I Intensive Survey, Proposed Western Elementary School #3, Howard County Public School System, Howard County, MD.
- Phase I Survey, New Design Bridge and Road Modification Project, Frederick County Department of Public Works, Bureau of Highways and Transportation, Frederick County, Maryland.
- Phase I Survey Juniata Woolen Mill, Bedford County. An archaeological Reconnaissance Survey north of the Juniata Woolen Mill, Snake Spring Township for Juniata Woolen Mill, Inc.
- Phase I Survey, Lower Georges Creek, Grays Landing Lock and Dam Project, Woolpert Consultants, Springhill and Nicholson Townships, Fayette County, PA.
- Phase II/III Excavations of Gallatin Sawmill site (36Fa428), Grays Landing Lock and Dam Project, Woolpert Consultants, Fayette County, PA.
- Phase II Assessment Eight Historical Sites, Eastern Portion of Segment II of the Proposed U.S. 30 Relocation Project, Dansard, Grohnke, and Long, Ltd., Hancock and Wyandot Counties, Ohio.
- Phase II Assessment of the Tile House Site, Eastern Portion of Segment I of the Proposed U.S. 30 Relocation Project, Dansard, Grohnke, and Long, Ltd., Hancock County, Ohio.
- Phase III Excavations of Young Site 33At668, Proposed Bridge Crossing of Hamley Run on S.R. 691 Project, Ohio Department of Transportation, Athens County, OH.
- Phase I Survey, Juniata Woolen Mill parking lot Project, Juniata Woolen Mill, Inc., Snake Spring Township, Bedford County, PA.
- Phase I Survey, Proposed Riverview Terrace Property Development Project, Cuyahoga Metropolitan Housing Authority, Cleveland, Cuyahoga County, Ohio
- Phase I Survey, Proposed Relocation of U.S. Route 30 Project, McCoy and Associates, Inc., Crawford and Richland Counties, Ohio.
- Phase I Survey, Mill Creek Mall Expansion Project, The Cafaro Company, Erie County, Pennsylvania.
- Phase I Inventory Survey, Naval Submarine Base Cultural Resources Planning Project, Naval Facilities Engineering Command, San Diego, California.

## Publications:

- 2003 The Leetsdale Project. PAC Newsletter 24:3-7. Co-authored with Conrad Weiser.
- 1995 A Cultural Resource Survey and Geomorphological Investigation of Loci 3, 4, 5, and 6 along Lower Georges Creek in Springhill and Nicholson Townships, Fayette County, Pennsylvania. Co-authored with Ronald C. Carlisle and J. Steven Kite. US Army Corps of Engineers, Pittsburgh District.
- 1995 Archaeological Assessment and Data Recovery of the Gallatin Sawmill at 36 Fa 428: The Eberhart Grist Mill, Dam, and Gallatin Sawmill. Co-authored with Ronald C. Carlisle, J. Steven Kite, Paula Zitzler, and Eric Davis. US Army Corps of Engineers, Pittsburgh District.



- 1992 Phase I Historic Properties Investigations, Youghiogheny River Lake Project, Fayette and Somerset Counties, Pennsylvania and Garrett County, Maryland. Co-authored with John P. Nass, Jr., John Roger Wright, and Rory Krupp. U S Army Corps of Engineers, Pittsburgh District.
- 1991 Coding System Manual for the East Liverpool, Ohio Urban Archaeology Project. ODOT Archaeological Series, No. 1.
- 1990 1990 Volume: Investigations into southeastern Utah Archaic, Phase III Archaeological Investigations of Two Small Sites Located Along U.S. 191, Holy Oak Lane to Blue Hill, San Juan County, Utah. John W. Hohman and John A. Hotop (eds.). Contributor. Studies in Western Archaeology No. 2. Louis Berger, East Orange. Pt. i-xiii, 1-289.
- 1986 Radiocarbon Dating of Archaeological Samples from Maryland. Co-authored with Hettie L. Boyce. Department of Natural Resources, Maryland Geological Survey, Archeological Studies No. 4.



# David L. Cremeens, Ph.D., CPSSc

*Senior Staff Soil Scientist*

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## Education

A.A. Life Science 1977, St. Louis Community College

B.S. Agriculture 1979, University of Missouri

M.S. Pedology, Minor in Geology 1983, Michigan State University

Ph.D. Pedology, Minor in Geochemistry 1989, University of Illinois

## Registrations/Certifications

Certified Professional Soil Scientist, No. 02949, Obtained 1/01/2007, Expires 12/31/2008

## Affiliations

Geological Society of America (GSA), Member, Archaeological Geology Division Chair 2003-2005

Soil Science Society of America, Member

Pennsylvania Association of Professional Soil Scientists, Member

West Virginia Association of Professional Soil Scientists, Member, President 1998-1999

American Quaternary Association, Member

Society for American Archaeology, Associate Member, Geoarchaeology Interest Group, Co-Chair 2001-2003

## Previous Employment

University of Illinois, 1983-1989

Michigan State University, 1980-1983

Utah State University for Utah Department of Agriculture, 1979-1980

University of Missouri, 1977-1979

## Summary

Dr. Cremeens specializes in soils and geomorphology investigations related to surficial processes, with emphasis on soil mapping and inventories, environmental site assessments, industrial foundation construction monitoring, contaminated soil remediation, soil borrow and utilization, waste water disposal, permit applications, geoarchaeology, and geotechnical exploration. He has extensive experience in pedology, geomorphology, geoarchaeology and environmental/geotechnical studies throughout the United States, and in Ontario, India, and the Dominican Republic.

Dr. Cremeens' soils and landscape investigation experience includes soil formation processes and design and re-vegetation of disturbed landscapes and urban soils. He is experienced in wetland delineation utilizing Global Positioning Survey (GPS) and Geographic Information System (GIS) software applications. Dr. Cremeens is proficient in the characterization of prehistoric and historic archaeological sites. He has taught soil science and pedology at the university level.

## Professional Experience

### Soil Scientist

- Dominion H-162 Pipeline Replacement Project in Kanawha and Clay Counties, West Virginia for Dominion Transmission. Environmental permitting and survey for 26.5-miles of replacement natural gas pipeline. Responsible for geoarchaeology reconnaissance.
- Reiker Hill Road RSW Landfill, AEP Conesville Power Plant in Muskingum County, Ohio for American Electric Power. Siting and design project for a new landfill (Site 3 Landfill) for Flue Gas Desulfurization (FGD) by-products. Responsible for soil borrow investigations.
- Rockies Express Pipeline-East Project in Warren County, Ohio for Caprock Environmental Services, LLC. Phase III archaeological data recovery excavations in Ohio in support of the Rockies Express Pipeline-East

Project. The project area consisted of a concentration of historic artifacts above and surrounding house foundation remains. During previous Phase I and II explorations, over 2,500 artifacts were uncovered from shovel test pits (STP), dating to historic-period occupations. The potential for undiscovered features was high, so a Phase III investigation was deemed necessary, as avoidance or preservation was not considered feasible. GAI determined that the site demonstrated sufficient horizontal and vertical integrity to meet the criteria for eligibility to the National Register of Historic Place (NRHP). Responsible for geoarchaeology evaluation of the Phase III archaeological data recovery at Site 33Wa797.

- Reliant Energy Keystone FGDS Retrofit, Keystone Power Station in Armstrong County, Pennsylvania for Reliant Energy and Shaw, Stone and Webster, Inc. Civil testing services, including soils, concrete, and asphalt testing and field construction monitoring. Responsible for QA field monitoring / inspection of auger cast piles and caissons.
- Hardy Transmission Project in Greene County, Virginia for Columbia Gas Transmission. Phase I and II cultural resources investigation of the 50-mile corridor Hardy Transmission and Storage project. Responsible for geoarchaeology evaluation of the Site 44GN115 data recovery project.
- Limestone Run AML Reclamation Project in Armstrong County, Pennsylvania for Allegheny Energy. Bid documents and National Pollution Discharge Elimination System (NPDES) for Allegheny Energy Limestone Run Abandoned Mine Lands (AML) reclamation project. Responsible for access / haul road geotechnical soil evaluation.
- Dominion HUB II Project in Chemung County, New York for Dominion Transmission. Federal Energy Regulatory Commission (FERC) certificate and permitting for 8-mile natural gas pipeline. Responsible for wetland delineation, stream identification, and geoarchaeology reconnaissance.
- Trans-Allegheny Interstate Line (TrAIL) Project in Pennsylvania and Virginia for Power Engineers, Inc. A sensitivity study was performed by GAI for the proposed construction of 114 miles of 500kV power transmission line in West Virginia, along with associated access roads, staging and pulling / tensioning areas. Using data from recorded archaeological sites within one mile of the proposed right-of-way (ROW), GAI developed a model for classifying a particular location relative to its sensitivity or potential for the presence of previously unknown archaeological resources. Responsible for geoarchaeology evaluation for Phase I cultural resources survey.
- Ohio Storage Expansion Project in Fairfield, Hocking, Ashland and Holmes Counties, Ohio for Columbia Gas Transmission. Cultural resources services. Responsible for geoarchaeology evaluation of Phase I and II archaeological survey.
- Edwardsport Mine Stabilization, Edwardsport Generating Station in Knox County, Indiana for Duke Energy. Subsidence Mitigation, including developing grouting specifications and monitoring grouting at new power plant. Responsible for QA/QC.
- Bell Bend Nuclear Power Plant in Luzerne County, Pennsylvania for UniStar Nuclear Development, LLC. Phase IB archaeological survey and supplemental architectural and historical surveys at the 630-acre Bell Bend project area. Responsible for geoarchaeology evaluation for Phase IA and IB cultural resources investigations.
- Curley Hollow Solid Waste Management Facility in Wise County, Virginia for Dominion Energy. Dominion Southwest Virginia Coal-Fired Project. Design and permitting of Coal Combustion By-Products (CCB) Landfill. Responsible for soil borrow investigation and groundwater monitoring.
- Keystone Pipeline in Armstrong County, Pennsylvania for Reliant Energy Northeast Management Company. Design of a wastewater discharge pipeline. Responsible for Phase 1a evaluation of archaeological potential and wetlands.
- Calvert Cliffs Nuclear Power Plant in Calvert County, Maryland for UniStar Nuclear Development, LLC. Cultural resources survey and National Register of Historic Places (NRHP) evaluation of resources in the Area of Potential Effect (APE) of proposed project activities. Responsible for geoarchaeology evaluation for Phase I and II cultural resources investigations.
- Mt. Storm Power Station in Grant County, West Virginia for Dominion Energy. Responsible for clay liner and cover soil borrow study.
- Clinch River Proposed Disposal Site in Russell County, Virginia for American Electric Power. Design and permitting services for a landfill site. Responsible for geoarchaeology evaluation of uplands during Phase 1A and 1B archaeology investigation.

- Cove Point Expansion Pipeline Project in Charles County, Maryland for Dominion Transmission Corporation. Phase III data recovery investigations at prehistoric archaeological Site 18Ch654 (Phillip's Meadow) to resolve adverse effects of Cove Point Expansion TL-532 pipeline construction to this National Register of Historic Places (NRHP) eligible site. Responsible for geoarchaeology evaluation of the Phillips Meadow Site.
- Ft. Ethan Allen historic site in Arlington County, Virginia for Arlington Heritage Alliance. Cultural Landscape Documentation Report (CLR) as a result of studies conducted at Fort Ethan Allen Park (4.37 acres). The focus of this study was Fort Ethan Allen in general and, specifically, that portion of the fort owned by Arlington County and located within Fort Ethan Allen Park. Responsible for geoarchaeology evaluation for the cultural landscape documentation.
- Great Bend Power Plant Project in Meigs County, Ohio for American Electric Power. Cultural resource investigations for the proposed Integrated Gasification Combined Cycle (IGCC) generation facility overlooking the Ohio River at Great Bend, Ohio. Phase I archeological investigations included a reconnaissance-level study of the 1200-acre project area to evaluate archeological potential and to make recommendations for avoidance of recorded sites. Phase II NRHP evaluations identified six previously documented and two newly identified sites; five of these sites were recommended NRHP-eligible under Criterion D, and warranted avoidance or data recovery to resolve adverse effects. Responsible for geoarchaeology evaluation for Phase I and Phase II archaeological investigation.
- Big Sandy Pipeline Project in Johnson and Floyd Counties, Kentucky for Equitable Resources Company. Equitable contracted GAI to collect, gather, and analyze the environmental and cultural resources data for the 68-mile gas pipeline in eastern Kentucky and to prepare the FERC Exhibit F Environmental Resource Reports for documentation, National Pollution Discharge Elimination System (NPDES) permitting, 404/401 permitting, and noise impact studies. GAI also developed the applicant-prepared environmental assessment. Additional services provided by GAI included threatened and endangered species field studies, wetland mitigation and stream stabilization design, and construction stakeout survey. Responsible for geoarchaeology evaluation for Phase II Rockshelters archaeological investigation.
- Big Sandy Pipeline Project in Carter, Lawrence, Johnson and Floyd Counties, Kentucky for Equitable Resources Company. Responsible for soil geomorphology investigation.
- Great Island, Clinton County, Pennsylvania and Lock Haven, Pennsylvania for PPL Gas Utilities. When a proposed project approached a previously identified site, GAI Consultants, Inc. (GAI) prepared a synthesis as alternative mitigation. Pennsylvania Archaeological Site Survey (PASS) files data were synthesized, as well as research report information, to summarize the prehistory of the Central West Branch Susquehanna River subbasin in north-central Pennsylvania. Great Island and the City of Lock Haven were the focal points from which a broad prehistoric context for the entire Subbasin 9 was provided. Responsible for geomorphology evaluation.
- Proposed New Coal Combustion By-Products (CCB) Landfill in Putnam County, West Virginia for Appalachian Power Company. Coal ash landfill design project for expansion of Quarrier Landfill Area C into an adjacent valley. Responsible for soil and geotechnical evaluation, clay borrow evaluation, mapping, soil sampling and laboratory analysis.
- Cove Point Expansion Phase II Archaeological Investigation in Charles, Prince Georges and Calvert Counties, Maryland for Dominion Transmission Corporation. Environmental services for over 150 miles of natural gas pipeline through Maryland, West Virginia, Pennsylvania, and New York at the LNG Terminal in Cove Point, Maryland. Work included environmental permitting and mitigation for temporary and permanent impacts from the project. GAI collected, gathered, and analyzed the environmental and cultural resources data for the FERC Exhibit F Environmental Resource Reports in Maryland, West Virginia, New York, and Pennsylvania. Responsible for soil geomorphology investigation.
- Hardy Storage Project Phase II Archaeological Investigation in Shenandoah, Rockingham and Greene Counties, Virginia for Columbia Gas Transmission. Phase I and II cultural resources investigation of the 50-mile corridor Hardy Transmission and Storage project. Responsible for soil geomorphology investigation.
- Brandywine Pozzolan Storage Site in Prince Georges County, Maryland for Mirant Mid-Atlantic, LLC. Design and permitting projects for Phase 1 Vertical Expansion and Phase 2 Lateral Expansion of the Brandywine Pozzolan storage sites. Responsible for soil resource evaluation and wetland delineation.
- Phase I Archaeology Investigation in Meade County, Kentucky for the University of Kentucky. Responsible for soil geomorphology investigation.

- Lost River Valley in Lost River, West Virginia for Columbia Gas Transmission Corp. Phase I and II cultural resources investigation of the 50-mile corridor Hardy Transmission and Storage project. Responsible for geomorphology and pedology evaluation.
- BPB Mitchell Project Site in Marshall County, West Virginia for Lockwood Greene/BPB America, Inc. Phase I and II site investigations. Responsible for geoarchaeology reconnaissance to assess surface and buried site potential and assess test unit stratigraphy at BPB Site 1.
- Kanawha River Bank in Mason County, West Virginia for Madison Coal and Supply Company and American Electric Power. Riverbank stabilization project for a Phase I/II Cultural Resources Investigation for Site 46Ms284. Responsible for detailed geomorphological assessment (backhoe trenching, profile recording) to characterize stratigraphic context of archeological remains, alluvial stratigraphy and landforms.
- IGCC East Plant Siting in Kentucky, Ohio, West Virginia for American Electric Power Company. Preliminary engineering for a proposed 600-MW IGCC power plant to be located in one of three states. Responsible for geoarchaeological reconnaissance at the prospective plant sites to assess near-surface and buried archeological potential as part of the Phase IA Cultural Resources Investigation; and geomorphological survey (backhoe trenching, profile description) at plant parcel to refine archaeological sensitivity assessments as part of a Phase IB Archaeological Investigation at the Mountaineer Plant site in Mason County, West Virginia.
- 90-mile Natural Gas Pipeline Corridor in Steuben, Chemung, Tioga, and Broome Counties, New York for Millennium Pipeline Corporation, LP. Responsible for wetland and stream characterization and delineation.
- Harrison Power Station CCB Landfill Site in Harrison County, Shinnston, West Virginia for Allegheny Energy. Coal Combustion By-Product (CCB) landfill expansion project requiring West Virginia Department of Environmental Protection (WVDEP) regulations compliance assistance, permitting, comprehensive study of site development alternatives, groundwater studies, monitoring well network design and well installation, and construction monitoring. Responsible for clay borrow Quality Assurance (QA) in support of the CCB landfill expansion and construction.
- Dominion Mid-Atlantic Project Cove Point Pipeline in Maryland, Pennsylvania and Virginia for Dominion Resources Services, Inc. Environmental permitting project to provide Federal Energy Regulatory Commission (FERC) Exhibit F reports; and local, state, and federal permitting for pipeline expansion utilizing a Geographic Information System (GIS) database. Responsible for geoarchaeology reconnaissance and wetland delineation for the natural gas pipeline corridor in Calvert, Prince George and Charles Counties, Maryland and Clinton, Centre and Mifflin Counties, Pennsylvania.
- Cable Corridor in Sullivan and Orange Counties, New York for Columbia Gas Transmission Corporation. Environmental studies and permitting project for cathodic protection anode and cable installation. Responsible for environmental survey and permit preparation.
- Romney Bridge Replacement (US 50) over the Potomac River in Hampshire County for the West Virginia Department of Transportation, Division of Highways. Cultural resources project under an open end agreement to provide Phase I and II archaeological surveys and architectural investigations of the preferred alternative, including National Register of Historic Places (NRHP) eligibility for the bridge (slated for replacement). Responsible for geomorphology and pedology evaluation of South Branch Potomac River valley floor.
- Pipeline Corridor in Cattaraugus County, New York and McKean and Potter Counties, Pennsylvania for Dominion Transmission, Inc. Environmental studies project for a 22-mile natural gas pipeline. Responsible for wetland delineation and geoarchaeology reconnaissance.
- Tower Sites in Wythe County, Virginia for American Electric Power, Inc. Responsible for geotechnical drilling and soil evaluation for transmission line tower sites.
- Andres Power Plant in Punta Caucedo Andres, Boca Chica, Dominican Republic for Allegheny Energy. Construction project for a LNG terminal. In 2002, responsible for water quality monitoring for turbidity using a field nephelometer during dredging operations on a coral reef environment.
- Wyoming/Jackson Ferry Transmission Line in Virginia and West Virginia for American Electric Power. Engineering and environmental consulting project for planning, design, and construction of a proposed 90-mile, 765 kV transmission line in compliance with federal and state permitting agencies requirements.
- Armstrong Power Station CCB Landfill in Washington Township, Armstrong County, Pennsylvania for Allegheny Energy Supply. Disposal site expansion project for a new Coal Combustion By-Product (CCB)



landfill at the power station. In 2002, responsible for soil resource and wetland evaluation, including site reconnaissance, drilling, test pit evaluation and mapping of soil resources, and wetlands.

- Armstrong Power Station Abandoned Clay Mine Working in Washington Township, Armstrong County, Pennsylvania for Allegheny Energy Supply. Geotechnical evaluation project for a clay mine stabilization study. Responsible for reconnaissance and geotechnical drilling to evaluate abandoned clay mine workings in association with the siting of a residual waste landfill.
- Armstrong Power Station in Washington Township, Armstrong County, Pennsylvania for Michael Baker, Inc. Responsible for soil science investigation in conjunction with a soil borrow study for the ash disposal site.
- Hatfield's Ferry Power Station in Greene County, Pennsylvania for Civil and Environmental Consultants, Inc. Soil borrow study project. Responsible for soil science investigation in conjunction with a soil borrow study at Hatfield's Ferry Power Station.
- Hatfield's Ferry Power Station in Greene County, Pennsylvania for Allegheny Energy. Residual waste landfill expansion. Responsible for geotechnical drilling, monitoring well installation, and soil resource mapping.
- Hatfield's Ferry Power Station in Greene County, Pennsylvania for Allegheny Energy. Coal Combustion By-product (CCB) disposal facility expansion project. Responsible for hydrogeological investigations associated with the expansion of the facility, including soil boring, rock coring, monitoring well installation and development, soil resource inventory, geotechnical sample collection, and wetland delineation.
- Keystone Power Station, Armstrong County, Pennsylvania for Reliant Energy. Inspection of Keystone SCR Micropile Installation. Responsible for inspecting depth, batter, and quality control for drilling, pile installation, and grouting of 270 micropiles, including grout sample collection and coordination.
- Los Mina Power Plant, Santo Domingo, Dominican Republic for Allegheny Energy Supply. Phase II environmental investigations. Responsible for site reconnaissance, drilling and monitoring well installation, and soil and surface sediment collection.
- Summerset at Frick Park Residential Development at Nine Mile Run in Pittsburgh, Pennsylvania for the Urban Redevelopment Authority of Pittsburgh. Brownfield project for a 238-acre brownfield site requiring grading, infrastructure planning, design, and permitting for a 713-unit multi-phased residential development on an abandoned riverside slag dump. Pittsburgh's largest and most noteworthy residential development since WWII and received the following awards: 2002 ESWP Award of Distinction in the Environmental Reclamation Category; 2003 Governor's Award for Environmental Excellence in the Land Use Category; and 2003 PA ACED Diamond Award for Engineering Excellence. Responsible for geotechnical boring inspection for subsurface investigation associated with grading, and for a vegetation establishment study for Phase I. Responsible for site reconnaissance, mapping, sampling, laboratory analyses of on-site materials, and specifications for blending a soil on site and for fertilization. Responsible for seeding, planting, erosion control, monitoring construction, and seeding and fertilizer placement.
- Mitchell Power Station in Courtney, Pennsylvania for Allegheny Energy Supply. Engineering and permitting project for a CCB landfill expansion at the power station located on the Monongahela River, requiring a ground water and geotechnical site investigation plan, geologic and hydrogeologic investigations, ground water monitoring and sampling, and a borrow site soil study.
- Follansbee-Weirton Road (WV2) in Brooke County, Follansbee, West Virginia for Whitney, Bailey, Cox & Magnani and the West Virginia Department of Transportation, Division of Highways. Cultural resources project for data recovery in advance of a highway widening project, requiring geomorphic and soils studies to reconstruct landscape evolution. Awarded the West Virginia Department of Transportation, Division of Highways 2001 Engineering Excellence Award, in the Planning and Environmental Category. Responsible for detailed soils description and laboratory analysis, geomorphology analysis, and burial and shell midden analysis for the Phase III mitigation of the upland site in the northern panhandle of West Virginia.
- Harrison Power Station in Harrison County, West Virginia for Allegheny Energy Services. Residual waste disposal area permitting and development project for expansion. From 1994 to 2004, responsible for inventorying soil resources, and mapping soil and sampling available materials for clay liner, cover soil, and general fill throughout the 750-acre property; and coordinated and supervised engineering laboratory evaluation of materials. Responsible for geotechnical exploration via subsurface drilling, including coring, rock classification, and down-hole camera monitoring.
- Fisher Overpass over South Branch Valley Railroad in Hardy County, Moorefield, West Virginia for West Virginia Department of Transportation, Division of Highways. Cultural resources project for a Phase 1

archaeological survey to prepare for construction of the proposed overpass and a temporary roadway to be used during construction. Responsible for geomorphological reconnaissance and soil evaluation.

- Warwick Mine Complex in Greene County, Pennsylvania for Duquesne Light Company. Mine sealing and reclamation project requiring a comprehensive site investigation plan to facilitate data collection (mapping, subsurface conditions. Innovative technologies such as the beneficial use of approved discarded materials (coal combustion by-products, bulk grading materials, mine soil amendments) were also investigated. Responsible for soil resource evaluation.
- Homer City Power Station in Indiana County, Homer City, Pennsylvania for ABB Astom Power. Subsurface investigation project. Responsible for geotechnical boring and rock coring inspection associated with a foundation analyses.
- Singrauli Coalfields, Uttar and Madhya Pradesh, India for Burns and Roe Corporation BFET/USAID/NTPC. Geotechnical and environmental feasibility project to evaluate geotechnical and environmental site conditions relative to fly ash haulback to selected mine sites. Responsible for developing preliminary plans for ash haulback to an abandoned mine and an active mine.
- Gettysburg National Military Park in Adams County, Pennsylvania for the National Park Service. Historic cultural landscape analysis project for a Codori / Trostle Thicket pilot study at the park. In 1999, responsible for mapping and delineating buried soils associated with historic ground surfaces, including sampling soils and analyzing the samples for pollen, indicating that this is a viable technique for use in historic landscape reconstruction.
- Lindesay Site in Niagara County, New York for Binghamton University Public Archaeology Facility. Phase III mitigation for an upland site. Responsible for detailed soils description and geomorphology reconnaissance.
- SR 4034 Erie East Side Access Highway in Erie County, Erie, Pennsylvania for the Pennsylvania Department of Transportation (PennDOT), District 1-0. Highway design project for preliminary and final design of 4.9 miles of new 4-lane arterial highway, and 2.4 miles of widening, relocating, and re-aligning side roads. Responsible for geotechnical boring inspection using PennDOT specifications.
- Pine Creek Flood Area in Etna Borough, Allegheny County, Pennsylvania for the Allegheny County Department of Economic Development. Flood stage control project along Pine Creek requiring engineering, final design, and construction monitoring services. Responsible for geomorphology and soils evaluation.
- SR 0219, Section C08 (Bradford Bypass Extension) in Bradford, McKean County, Pennsylvania for the Pennsylvania Department of Transportation, District 2-0. Final design project for a 2-lane, 0.8-mile highway bypass extension including a partial interchange. Responsible for geotechnical drilling for road and bridge construction, and for soil boring, rock coring, geotechnical sample collection, and vane shear testing.
- Shaker Crossing Site RMSC Nda118 in Livingston County, New York for Rochester Museum and Science Center. Phase III mitigation project. In 1999, responsible for soil geomorphology reconnaissance and evaluation of deep trenches across the site.
- Ramsay Site in Dutchess County, New York for the Binghamton University Public Archaeology Facility. Phase III mitigation project for the historic site. Responsible for detailed soil profile descriptions of test units, and soil geomorphology reconnaissance of the project area.
- Proposed Gettysburg Museum and Visitors Center in Gettysburg National Military Park, Gettysburg, Pennsylvania for the Gettysburg National Battlefield Museum Foundation. Phase IA Investigation. Responsible for geomorphological reconnaissance to delineate areas suitable for testing.
- SR 0219, Section C08, Bradford Bypass Extension, in Bradford, McKean County for the Pennsylvania Department of Transportation, District 2-0. Final design for a 2-lane, 0.8-mile highway bypass extension including a partial interchange. Responsible for geotechnical and hydrogeology.
- South Bend Compressor Station in Armstrong County, Pennsylvania for CNG Transmission Corporation. Environmental studies project for valve installations.
- Coverts Crossing Bridge in Lawrence County for the Pennsylvania Department of Transportation (PennDOT), District 11-0. Cultural resources project to provide archaeological excavation and public outreach for a bridge replacement. Awarded the 2002 FHWA, Pennsylvania Division, Inaugural Historic Preservation Excellence Award.
- Cabbage Pond Mill Site 7S-C-61 in Sussex County for the Delaware Department of Transportation (DelDOT). Cultural resources project to determine the significance of an 18th to mid-20th century gristmill site identified during construction to replace a bridge over a pond, requiring immediate response to the unexpected



archaeological find, and extensive teamwork and coordination with DelDOT, Delaware State Historic Preservation Office, and the construction contractor. Responsible for geomorphology reconnaissance and soil-sediment evaluation.

- Millennium Pipeline from Lake Erie to Westchester, New York for Millennium Pipeline Corporation, LP. Environmental research for a proposed 422-mile natural gas pipeline extending from Lake Erie into New York requiring extensive environmental research and field-team collection of GIS data using ARC/INFO and ArcView. Data collection was completed within a 4-month fast-track schedule and data was used to develop a Federal Energy Regulatory Commission (FERC) environmental report. Responsible for operating GPS equipment and data collection hardware, and identifying wetlands based on soils, vegetation, and hydrology.
- Yorktown Power Station Ash Facility in Yorktown, Virginia for Virginia Power. Site closure project to provide “clean” closure of the site and redesign the site entrance intersection.
- Abandoned Mine Lands in Southwestern Pennsylvania for Duquesne Light Company. Siting and design project for beneficial use fills using Coal Combustion By-Products (CCBs) at abandoned mine lands (AMLs), requiring a database of AML sites and characteristics, GIS map preparation and analysis, data collection using GPS, and field reconnaissance of potential sites.
- Gateway Connector at East Marion County Park in Fairmont, West Virginia for the West Virginia Department of Transportation, Division of Highways. Impact assessment project to address impacts to the park resulting from construction of the 1-mile expressway from Interstate 79 to the City of Fairmont.
- Fort Necessity National Battlefield in Fayette County, Pennsylvania for the National Park Service. Responsible for detailed soils description and geomorphological analyses.
- Latrobe Steel Pipeline in Westmoreland County, Pennsylvania for Clinton Gas Marketing, Inc. Environmental studies project requiring environmental and cultural resources surveys for 15.5 miles of natural gas pipeline.
- Former Underground Storage Tank Site in Ouachita Parish, Louisiana for a major chemical corporation (confidential). Contaminated soil and groundwater remediation project. From 1991 to 1995, responsible for field investigation, laboratory analyses, and remediation of solvent contaminated soil and groundwater.
- Gettysburg National Military Park Sewer in Gettysburg, Pennsylvania for the National Park Service. Archaeological monitoring project for development of a proposed park-wide sewer system, the largest single archaeological project ever conducted at Gettysburg National Military Park. Archaeological testing and data recovery, investigations at 30 prehistoric and historic sites, analysis and cataloging of 29,000 artifacts, and the contribution of substantial and important information to the park’s overall archaeological database.
- Mt. Storm Power Station Residual Waste Disposal Site in Mt. Storm, West Virginia for Virginia Power. Environmental waste management project to permit, design, and monitor a residual waste disposal site. Responsible for soil borrow material investigation for the design and permitting of the 200-acre Flue Gas Desulfurization (FGD) by-product disposal facility at the Mt. Storm Station. Responsible for soil mapping and sampling of available materials over a 1,100-acre area.
- Warren Power Station Ash Disposal Site in Warren, Pennsylvania for Pennsylvania Electric Company. Permitting project to re-permit a residual waste disposal facility, requiring Phase I investigations to address exclusionary criteria, environmental assessment, soils, geology, and groundwater.
- GPU Industrial Waste Disposal Sites in western Pennsylvania for GENCO-GPU, Inc. Site location and conceptual design project to evaluate alternative site locations for residual waste disposal sites requiring geotechnical and hydrogeologic site investigations, and soil borings and monitoring well installations. Responsible for evaluating soil resources for use as clay liner and cover soils as part of a Residual Waste Permit application for two generating station ash sites. Investigated fly ash cover soil mixtures for final cover design and developed a revegetation plan for three generating station ash disposal sites.
- Tolsia Highway, US 52, in Wayne and Mingo Counties for the West Virginia Department of Transportation, Division of Highways. Cultural resources project for Phase I, II, and III cultural resource investigations.
- Appalachian Corridor L, US 19, in Nicholas and Braxton Counties for the West Virginia Department of Transportation, Division of Highways. Environmental assessment project for a 24-mile, 4-lane partially controlled access highway including a 16-acre wetland mitigation site, and Phase I/II/III cultural resources investigations. The fast-track EIS was completed in less than 2 years.
- Blue Marsh Lake, (Tract 1037) in Berks County, Jefferson Township, Pennsylvania for U.S. Army Corps of Engineers. Phase I cultural resources investigation project for a 37-acre parcel in advance of disposal of the

property (Tract 1037) that included a circa 1870s farmstead and a railroad bed associated with the 19th-century South Mountain Railroad.

- Resource Conservation and Recovery Act (RCRA) Cap Closure of Soft Sludge Impoundment in Butler County for AK Steel (ARMCO, Inc.) Construction of an RCRA cap for closure of a 25-acre sludge impoundment of industrial waste over extremely soft industrial wastes. Responsible for soil borrow material investigation, soil mapping and sampling of available materials over a 70-acre area. Developed vegetation specifications.
- Abandoned Slate Quarries for Metropolitan Edison. Developed and assisted in the spray irrigation and agricultural utilization of two million gallons of cadmium and lead-contaminated wastewater associated with the closing of two abandoned slate quarries. Responsible for determining areas suitable for spray irrigation, determining background levels of metals in the soil, on-site monitoring of soil moisture contents during irrigation, closure of the quarries, and follow-up soil and vegetation sampling.
- Southern Alleghenies Municipal Waste Landfill in Davidsville, Cambria County, Pennsylvania for Chambers Development Corp. Landfill permitting and design project to modify an existing municipal waste disposal site to conform to Pennsylvania Department of Environmental Protection (PaDEP) regulations. Responsible for developing a soil management plan for the landfill in central Pennsylvania that required 1.6 million cubic yards of soil material. The plan included an excavation removal sequence plan, a processing methodology for the materials required, and a QA/QC plan.
- Harrison Power Station Wastewater Treatment Plant in Haywood and Shinnston, West Virginia for Allegheny Energy Supply. Wastewater treatment plant conceptual design project.
- Pleasants Power Station Landslide in Willow Island, West Virginia for Allegheny Energy. Landslide investigation and repair project for a 300'-wide, 500'-long landslide affecting the power station's ash disposal area haul road. Responsible for inspecting SCR micropile installation including depth, batter, and quality control in the drilling, pile installation and grouting of 20 micropiles.
- Springdale Power Plant in Allegheny County, Pennsylvania for Allegheny Energy. Mine stabilization project at the abandoned power plant. Responsible for inspecting equipment, grout, fly ash and water usage, grout consistency via the slurry cone test, and progress of mine stabilization.
- Homer City Power Station in Indiana County, Homer City, Pennsylvania for Reliant Energy. Auger cast pile installation project. Responsible for inspecting 48"-diameter auger hole for auger cast pile.
- Geotechnical boring inspection for developing recommendations for foundations and earth works associated with building addition. JSA/May Company, Youngstown, Ohio.
- Investigated fly ash or scrubber sludge use as an alternative final cover material capable of sustaining vegetation during final reclamation of a coal refuse disposal site. A Coal Company in Kentucky.
- Analyzed fly ash amended soil cover and subsequent development of a revegetation specification for the expansion of a fly ash disposal site's final design. Potomac Electric Power Company.
- Geotechnical exploration via subsurface drilling for the lower tributary valley expansion of the Pigotts Run disposal area, Harrison Power Station, Harrison County, West Virginia. Coring, rock classification, and down-hole camera monitoring. Allegheny Power.
- Research specialist for Contaminated Lands Reclamation Project on Group 61 Site (U.S. Army Superfund) at Joliet Army Ammunition Plant, Joliet, Illinois, involved University of Illinois, U.S. Army Construction Engineering Research Laboratory (CERL), and U.S. Army Toxic and Hazardous Materials Agency (USATHAMA). University of Illinois.
- Remediation of solvent contaminated soil including monitoring groundwater quality and soil contamination level at an ink printing facility in northern Louisiana. Confidential Client.
- Environmental site assessments including Phase I reconnaissance, Phase II site studies with soil and groundwater testing, and Phase III remediation throughout the U.S. and Canada.
- Developed a plan for the landfarm-bioremediation of 1200 cubic yards of fuel-contaminated soils, including delineating a suitable area according to North Carolina regulations and sampling and analyze contaminated soils. Truck Stops of America.

## Publications

- 2009 George, S.E, D.L. Cremeens, C.G. Scott, D.E. Buck, and L.S. Hart. 2009. Missouri Ozark Fens: Hydrogeologic and ecological setting and soil characteristics. *Wetlands* (in prep).

- 2009 Cremeens, D.L., J.A. Parobek, C. Miller and S. Flinn 2009. Permanent vegetation establishment on a former slag disposal pile in Pittsburgh, Pennsylvania, USA. *Urban Forestry and Urban Greening* (in prep).
- 2009 Cremeens, D.L. and J.P. Hart. 2009. Holocene alluvial geoarchaeology of the Memorial Park Site (36Cn164), West Branch Susquehanna River, Pennsylvania. *Archaeology of Eastern North America* (in press).
- 2009 MacDonald, D.H., Manzano, B., Lothrop, J.C., Cremeens, D.L., Parker, K., and B. Shreckengost, 2009. With mica we mourn: Late prehistoric mortuary practices at Clark Rockshelter, Kentucky. *Midcontinent Journal of Archaeology* (in press).
- 2009 Cremeens, D.L. and J.C. Lothrop 2009. Geoarchaeology of a strath terrace in the upper Ohio Valley, West Virginia. *Soil Science Society of America Journal* 73:390-402.
- 2009 Darmody, R.G., W.L. Daniels, J.C. Marlin, and D.L. Cremeens. 2009. Topsoil: What is it and who cares? In: R.I. Barnhisel (ed.) *Revitalizing the Environment: Proven solutions and innovative approaches*. Proceedings of the American Society of Mining and Reclamation, Lexington, KY (in review).
- 2009 Lothrop, J.C., Bradley, J.W., and D.L. Cremeens. 2009. Aspects of Paleoindian settlement in the Ohio Valley and New England. In *Early Paleoindian Colonization of the North American Mid-Continent* D. Amick (ed.) (in prep).
- 2009 Cremeens, D.L., and J.K. Stein, 2009. Historical archaeology, urban archaeology, and geoarchaeology. Introduction. In *Geoarchaeology of Historic and Urban Contexts* Gilbert and Schuldenrein (eds.) Univ. Press of Florida (in prep).
- 2006 MacDonald, D.H., Lothrop, J.C., Cremeens, D.L. and Munford, B.A 2006. Holocene land-use, settlement patterns, and lithic raw material use in central West Virginia. *Archaeology of Eastern North America* 34: 121-140.
- 2005 Cremeens, D.L., R.G. Darmody, S.E. George 2005. Upper slope landforms and age of bedrock exposures in the St. Francois Mountains, Missouri: A comparison to relict periglacial features in the Appalachian Plateau of West Virginia. *Geomorphology* 70: 71-84.
- 2005 MacDonald, D.H. and Cremeens, D.L. 2005. Holocene Lithic Raw Material use at Skink Rockshelter (Site 46Ni445), Nicholas County, West Virginia. In *Uplands Archaeology in the East Symposia VIII & IX*, C. Nash and M.B.
- 2005 Cremeens, D.L. D.H. MacDonald, J.C. Lothrop, B.A. Munford, and K.E. Parker. 2005. Holocene land-use, settlement patterns, and stone tool production in the Muddlety Creek Valley (Corridor L), central West Virginia. *Archaeology of Eastern North America* (in review).
- 2005 Cremeens, D.L. 2005. Pedology of a loess-mantled terrace strath in the upper Ohio Valley. *Geomorphology* (in prep).
- 2005 Cremeens, D.L. 2005. Micromorphology of Cotiga Mound, West Virginia. *Geoarchaeology: An International Journal* 20: 581-597.
- 2004 Cremeens, D.L. 2004. Geoarchaeology. Highlights Issue of *Geotimes*. July, 2004: 39-40.
- 2003 Cremeens, D.L., J.S. Kite, and R.D. Mandel. 2003. Introduction. *Geoarchaeology: An International Journal* 18: 681-683.
- 2003 Cremeens, D.L., J.A. Parobek, C. Miller and S. Pfaff. 2003. From Slag Heap to Community Forest. In *Engineering Green*, Proceedings of the 2003 National Urban Forest Conference, C. Kollin (ed.) American Forests, Washington, DC. (pp. 170-172).
- 2003 Cremeens, D.L., D.H. MacDonald, and J.C. Lothrop. 2003. Holocene Colluvial Soils and Geoarchaeology in the Unglaciaded Appalachian Plateau: Two Examples from West Virginia, USA. *Geoarchaeology: An International Journal* 18:799-826.
- 2003 Cremeens, D.L. and J.P. Hart. 2003. Introduction. Chapter 1 in *Geoarchaeology of Landscapes in the Glaciaded Northeast*, D.L. Cremeens and J.P. Hart (eds.) New York State Museum Bulletin 497, University of the State of New York, Albany. (pp. 1-3).
- 2003 Cremeens, D.L. and J.P. Hart, (eds.). 2003. *Geoarchaeology of Landscapes in the Glaciaded Northeast*. New York State Museum Bulletin 497, University of the State of New York, Albany.

- 2003 Cremeens, D.L. and J.A. Parobek. Vegetation Establishment on a Former Slag Disposal Site in Pittsburgh presented at the 2003 National Urban Forest Conference, San Antonio, TX, September 17-20, 2003.
- 2003 Cremeens, D.L. 2003. Geoarchaeology of Upland Soils on Stable Geomorphic Surfaces: Mature Soil Model for the Glaciated Northeast. Chapter 4 in Geoarchaeology of Landscapes in the Glaciated Northeast, D.L. Cremeens and J.P. Hart (eds.) New York State Museum Bulletin 497, University of the State of New York, Albany. (pp. 49-60).
- 2002 Cremeens, D.L., S.E. George, and R.G. Dannody. 2002. Block streams and blockfields in the St. Francois Mountains, Missouri: possible periglacial indicators. *Geomorphology* (in prep).
- 2002 Cremeens, D.L., D.H. MacDonald, and J. C. Lothrop. 2002. Holocene Colluvial Soils and Geoarchaeology in the Unglaciated Appalachian Plateau: Two Examples from Southern West Virginia. *Geoarchaeology* (in press).
- 2002 Cremeens, D.L. and D.H. MacDonald. 2002. Archaeology and Geomorphology of the Coverts Crossing (36LR75) and Coverts Bridge (36LR228) Sites, Lawrence County, Pennsylvania. *Pennsylvania Archaeologist* 72: 17-50
- 2001 Cremeens, D.L., and J.C. Lothrop. 2001. Geomorphology of Regolith in the Unglaciated Appalachian Plateau: Implications for Prehistoric Archaeology. Chapter in *Archaeology of the Appalachian Highlands*, L.P. Sullivan and S.C. Prezzano (eds), University of Tennessee Press, Knoxville, pp.31-48.
- 2000 Cremeens, D.L. 2000. Pedology of the Regolith-Bedrock Boundary: an Example from the Appalachian Plateau of Northern West Virginia. *Southeastern Geology* 39: 329-339.
- 2000 Cremeens, D. L. Geoarchaeology of Colluvial Soils in the Appalachian Plateau presented at the Geological Society of America Annual Meeting, November 13-16, 2000, Reno, Nevada.
- 2000 Cremeens, D. L. and J.C. Lothrop. Colluvial Geoarchaeology in the Appalachian Plateau of West Virginia" presented at the West Virginia Archaeological Council Meeting, Charleston, West Virginia, April 29, 2000.
- 1999 Cremeens, D.L. 1999. Abandoned Meanders of the Teays-age Big Sandy Valley, West Virginia: Terraces, Soils, and Quaternary Geology. *Geological Society of America, Abstracts with Programs*, Vol. 31, No.7, Oct. 1999.
- 1999 Cremeens, D. L. 1999. Soils and Quaternary Geology of the Big Sandy Valley. Southeast Friends of the Pleistocene Annual Meeting, Carter Caves, Kentucky. Field Guide printed locally.
- 1998 Cremeens, D.L., J.P. Hart, and R.G. Darmody. 1998. Complex Pedostratigraphy of a Terrace Fragipan at the Memorial Park Site, Central Pennsylvania. *Geoarchaeology: An International Journal*, Vol. 13, No. 6, 339-359.
- 1998 Cremeens, D.L., J.C. Lothrop, K. Parson, and K.W. Mahoney. Prehistoric Archaeology of the Tolsia Highway, presented at the West Virginia Archaeological Society Meetings in Moundsville, W.Va., October 17, 1998.
- 1998 Cremeens, D. L. Archaeological Context in the Pedological Environment presented at the Geological Society of America Annual Meeting in Toronto, Canada, October 26-29, 1998.
- 1998 Cremeens, D. L. and J.C. Lothrop. Geomorphology of Regolith in the Unglaciated Appalachian Plateau: Implications for Prehistoric Archaeology, presented at the Middle Atlantic Archaeological Conference in Cape May, N.J., April 2-5, 1998.
- 1997 Cremeens, D. L., D. B. Landers, and S.R. Frankenberg. 1997. Geomorphic Setting and Stratigraphy of Cotiga Mound, Mingo County, West Virginia. *Geoarchaeology: An International Journal*, Vol. 12, No. 5, 459-477.
- 1997 Cremeens, D. L. Soils and Quaternary Geology of the Big Sandy Valley. Presented at the 1997 West Virginia Association of Professional Soil Scientists Meeting and Field Trip, Huntington, West Virginia, June 6-7, 1997.
- 1997 Cremeens, D. L. Archaeological Context in the Pedological Environment. Presented at the Geological Society of America Annual Meeting in Salt Lake City, Utah, October 20-23, 1997.

- 1996 Cremeens, D. L. Geomorphic Setting and Physical Structure of Cotiga Mound, a Woodland Burial Mound in West Virginia. Presented at the Geological Society of America Meeting in Denver, CO, October 28-31, 1996.
- 1995 Cremeens, D.L., and J.P. Hart. 1995. On Chronostratigraphy, Pedostratigraphy, and Archaeological Context. In *Pedological Perspectives in Archaeological Research*, Soil Science Society of America, Special Publication No. 24, pp. 15-33., Madison, WI
- 1995 Cremeens, D.L. 1995. Pedogenesis of Cotiga Mound: A 2100-Year-Old Woodland Mound in Southwestern West Virginia. *Soil Science Society of America Journal* 59:1377-1388.
- 1995 Cremeens, D. L. Use of Coal Combustion by Products to Reduce Cover Soil Volume in Reclamation. Presented at the NAAMLTP meetings in French Lick, IN, October 15-18, 1995.
- 1995 Cremeens, D. L. Pedology of the Regolith - Bedrock Boundary in the Appalachian Plateau of West Virginia. Presented at the GSA Southeast Section, Knoxville, TN, April 6-7, 1995.
- 1994 Cremeens, D.L., E.J. Ciolkosz, N.C. Thurman, W.J. Waltman, and M.D. Svoboda. 1994. Argillic Horizons in Pennsylvania Soils. *Agronomy Series*, No. 131, February 1994, Agronomy Department, Pennsylvania State University, University Park, Pennsylvania.
- 1994 Cremeens, D.L. 1994. Summary. In *Whole Regolith Pedology*. Cremeens, D.L., R.B. Brown, and J.H. Huddleston, editors. *Soil Society of America Special Publication 34*, Am. Soc. Agron., Madison, WI.
- 1994 Cremeens, D. L. Pedogenesis of Cotiga Mound: A 2150-year-old Adena Mound in S. W. West Virginia. Presented at the soil Science Society of America (Journal) and Annual Meeting, Seattle, WA, November 13-17, 1994.
- 1993 Cremeens, D.L., S.L. Brantley, A.C. Blai, I. McInness, and R.G. Darmody. 1993. Natural Etching Rates of Feldspar and Hornblende. *Aquatic Science* 55: 262-272.
- 1993 Cremeens, D. L., and J.P. Hart. On Chronostratigraphy, Pedostratigraphy, and Archaeological Context. Presented at the Annual Meeting of the Soil Science Society of America, Cincinnati, OH, November 7-12, 1993.
- 1992 Cremeens, D.L., R.G. Darmody, and L.D. Norton. 1992. Etch-pit Size and Shape Distribution on Orthoclase and Pyriboles in a Loess Catena. *Geochimica Cosmochimica Acta* 56: 3423-3434.
- 1991 Cremeens, D.L. and D.L. Mokma. 1991. Relationships of Saturation and B Horizon Colour Patterns in Soils of Three Hydrosequences in South-Central Michigan, U.S.A. *Soil Use Management* 7: 56-61.
- 1991 Cremeens, D. L., and J.P. Hart. Pedological Delineation of Disturbance at the Upland Archaeological Site. Presented at the Annual Meeting of the Geological Society of America, San Diego, CA, October 21-24, 1991.
- 1990 Cremeens, D.L., R.G. Darmody, and D.L. Mokma. 1990. Micromorphology of Feldspar Weathering in a Lithic Clast (semi-closed system) Versus the Associated S-matrix (open system) in a Till Paleosol. In *Soil Micromorphology: A Basic and Applied Science*, Proceedings of VIIIth Int. Work Mtg. Soil Micromorphology, L.A. Douglas, ed., pp. 531-536. Elsevier, New York.
- 1990 Cremeens, D. L., and J.K. Buck. Soil Management Plan for Sanitary Landfills in Pennsylvania. *Pollution Engineering*, 1990.
- 1990 Cremeens, D. L., and J.K. Buck. Soil Management Plan for Sanitary Landfills in Central Pennsylvania. Presented at the American Society of Agronomy Annual Meetings, San Antonio, TX, October 21-26, 1990.
- 1989 Cremeens, D.L., R.G. Darmody, I.J. Jansen, and L.D. Norton. 1989. Etch-pit Size and Shape Distribution on Orthoclase and Pyriboles Associated with Soil Depth and Drainage in Loess Soils. In *Proceedings of the 6th International Symposium on Water-Rock Interaction*, D.L. Miles, ed. A.A. Balkema, Rotterdam.
- 1989 Cremeens, D. L. 1989. Surfaces of Weathered Minerals Associated with Soil Drainage: A Quantitative Microscopic Evaluation. Ph.D. Dissertation, University of Illinois, Urbana, Illinois.



- 1988 Cremeens, D.L., L.D. Norton, R.G. Darmody, and I.J. Jansen. 1988. Etch-pit Measurements on Scanning Electron Micrographs of Weathered Grain Surfaces. Soil Science Society of America Journal 52: 883-885.
- 1987 Cremeens, D.L., R.G. Darmody, and I.J. Jansen. 1987. SEM Analysis of Weathered Grains: Pretreatment Effects. Geology 15: 401-404.
- 1987 Cremeens, D.L., and D.L. Mokma. 1987. Fine Clay Mineralogy of Soil Matrices and Clay Films in Two Michigan Hydrosequences. Soil Science Society of American Journal 51: 1378-1381.
- 1986 Cremeens, D.L., and D.L. Mokma. 1986. Argillic Horizon Expression and Classification in the Soils of Two Michigan Hydrosequences. Soil Science Society of American Journal 50: 1002-1007.
- 1983 D.L. Cremeens, D.L. Mokma, and D.P. Krauss. 1983. Soil Classification: A Manual for CSS 470 Soil Classification. Required text for classroom use, Department of Crop and Soil Sciences, Michigan State University, East Lansing. Printed locally.
- 1983 Cremeens, D.L. 1983. Argillic Horizon Formation in the Soils of a Hydrosequence. Masters Thesis, Michigan State University, East Lansing, Michigan.

# Megan Lea Otten

*Senior Cultural Resources Specialist*

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## Education

B.A. History, University of Pittsburgh, 2006, College of Arts and Sciences  
Minor: Administration of Justice

## Certification

Historic Preservation Certificate

## Areas of Specialization

Architectural history, historic preservation, Section 106 compliance, field survey and research

## Affiliations

Member, Alpha Delta Pi Sorority

## Professional Experience

### 2009

- Prepared MHT Determination of Eligibility Forms. Phase I Cultural Resources Investigations and Phase II National Register Site Evaluations, Calvert Cliffs Nuclear Power Plant, Calvert County, Maryland, for UniStar Nuclear Development, LLC.
- Background Research. Phase I Cultural Resources Survey for the Ranger Pipeline Project, Floyd, Martin, and Pike Counties, Kentucky, for EQT Production Company.
- Cultural Resource Specialist. Islamorada Historical and Archaeological Survey, Islamorada, Village of Islands, Florida, for Islamorada, Village of Islands, Planning & Development Services.

### 2008

- Background Research. Phase I Cultural Resources, Pursley Transmission Line, Center Township, Greene County, Pennsylvania, for Allegheny Power.
- Cultural Resource Specialist. Phase I Cultural Resources Survey, VA State Line--Meadowbrook Substation and Meadowbrook Substation--Appalachian Trail Segments of the Trans-Allegheny Interstate Line (TrAIL) Project, Frederick and Warren Counties, Virginia for Power Engineers, Inc.
- Background Research and Windshield Survey. Phase I Cultural Resources Survey, Cheat Lake 138kV Transmission Line and Substation Development Project, Monongalia County, West Virginia, for Allegheny Power.
- Background Research and PHRS Documentation. Phase Ib Cultural Resources Investigation, Bell Bend Nuclear Power Plant, Luzerne County, Pennsylvania, for UniStar Nuclear Development, LLC.
- MHT Determination of Eligibility Forms, Background Research and Documentation, Phase I Cultural Resources Investigations and Phase II National Register Site Evaluations, Calvert Cliffs Nuclear Power Plant, Calvert County, Maryland, for UniStar Nuclear Development, LLC.
- Architectural Survey and Background Research. Phase I Cultural Resources Survey, Franklin 20-inch Storage Pipeline Project, Wayne and Summit Counties, Ohio, for Dominion East Ohio Gas.
- Background Research and Documentation, Architectural Survey of West Palm Beach Local Historic Districts of Prospect Park/Southland Park for the City of West Palm Beach Historic Preservation Division
- Background Research and Documentation, Historic Structure Survey, City of Bunnell, Flagler County, Florida for the City of Bunnell.

- Architectural and Historic Resources Survey Report and Effects Evaluation, Matt Funk 138kV Bus Tie #1 Project, Montgomery and Roanoke Counties, Virginia for Appalachian Power, a Unit of American Electric Power.
- Architectural and Historic Resources Survey Report and Effects Evaluation, Sunscape 138kV Transmission Line Project, Roanoke County, Virginia, for American Electric Power.
- Architectural Survey and Background Research. Phase I Cultural Resources Survey and Geomorphology Investigation, Proposed V-382 Pipeline Project, Belmont County, Ohio. Client: Columbia Gas Transmission.
- Tavernier Historic District Intensive Level Survey and Publication, for Monroe County Board of County Commissioners and Historic Florida Keys Foundation, Key West, Florida.

#### **2007**

- Survey of Historic and Architectural Resources, Pennsylvania Turnpike Commission, Bedford County, Mile Post 149-155.5 Total Reconstruction
- Phase Ia Cultural Resources Reconnaissance, Carrie Furnace Development Project, Allegheny County, Pennsylvania, for the Redevelopment Authority of Allegheny County.

#### **2006**

- Survey of Historic Architectural Resources, Racket-Newberne Facility, Gilmer County, West Virginia, DTI-USA Project, for Dominion Transmission, Inc.
- Survey of Historic Architectural Resources, Glade Run 138 kV Loop, Armstrong County, Pennsylvania, for Allegheny Power
- AEP Siting of the Equitable Gathering Project, Phase I, Floyd County, Kentucky.



# Alyssa Kay Trimmer

*Archaeologist*

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## Education

M.A., (MPhil) Archaeological Science, 2008, Cambridge University

B.A.. Anthropology, 2003, University of Pittsburgh

## Professional Training/Coursework

Section 106 Essentials Training, 2009

## Registrations

Registered Professional Archaeologist, 2008/9

## Areas of Specialization

Ms. Trimmer worked at GAI as an archaeological technician and lab assistant for 15 months before attending and graduating Cambridge University. Her Masters Thesis is entitled "The Impact of Site Formation Processes and the Preservation of Agricultural Signatures in Three Typical English Soil Types in Thin Section." While attending Cambridge, Alyssa's additional training included geoarchaeology, micromorphology, zooarchaeology, paleobotany, biomolecular archaeology, and GIS.

## Professional Experience

### 2009

- Report Author. Interim Management Summary, Phase I Archaeological Investigations, Welton Springs Substation, Potomac-Appalachian Transmission Highline (PATH) Project, Hardy County, West Virginia, for Power Engineers.
- Report Author. Phase I Archaeological Investigation, Cobb Expansion Project, Kanawha County, West Virginia, for Columbia Gas Transmission.
- Report Figures. Phase I Cultural Resources Survey, Kemptown Substation, Potomac-Appalachian Transmission Highline (PATH), Frederick County, Maryland, for Power Engineers.
- Report Author. Phase I Archaeological Survey, Line 1360 Upgrade Project, West Finley and Donegal Townships, Washington County, Pennsylvania, for Columbia Gas Transmission.
- Report Author. Phase I Cultural Resources Survey, Line 1570 Upgrade Project, Washington and Greene Counties, Pennsylvania, for Columbia Gas Transmission.
- Report Author. Supplemental Phase I Archaeological and Geomorphological Survey, Areas II and III Water and Sewer Project, Bedford Township, Bedford County, Pennsylvania, for Bedford Township Municipal Authority and Stiffler, McGraw & Associates, Inc.
- Report Author. Phase I Archaeological Survey, NIJUS003 Pipeline Project, Center and Morris Townships, Greene County, Pennsylvania, for EQT Gathering, Inc.
- Report Co-Author. Phase Ib Archaeological Survey, Rural Valley Pipeline Project, Armstrong, Westmoreland, Elk, and McKean Counties, Pennsylvania, for Dominion Transmission, Inc.
- Report Author. Phase Ib Archaeological Survey, NIJUS001 (MD-146) Pipeline Project, Amwell Township, Washington County, Pennsylvania, for EQT Production Company.
- Report Co-Author. Phase Ib Archaeological Survey, Rural Valley Pipeline Project, Armstrong, Westmoreland, Elk, and McKean Counties, Pennsylvania, for Dominion Transmission, Inc.
- Graphics and Report Contributions. Co-Principal Investigator. Supplemental Phase Ib Archaeological Survey, NIJUS-0002 MD-101 Pipeline Project, Morris Township, Greene County, Pennsylvania, for Equitable Gathering, LLC.
- Report Author. Supplemental Phase Ib Archaeological Survey, NIJUS-0002 MD-101 Pipeline Project, Morris Township, Greene County, Pennsylvania, for Equitable Gathering, LLC.

- Graphics. Phase II Investigations of the Dun Glen Hotel Site for the Fire Suppression System, Fayette County, West Virginia, for National Park Service-NERI.

## 2008

- Report Author / Graphics. Technical Report, Phase I Archaeological Survey, Rural Valley Pipeline Project, Armstrong, Elk, and McKean Counties, Pennsylvania, for Dominion Transmission, Inc.
- Report Author. Phase I Archaeological Survey, Loyalhanna Substation Expansion Project, City of Latrobe, Westmoreland County, Pennsylvania, for Allegheny Power.
- Report Author. Phase Ib Archaeological Survey, MD-101 Pipeline Project, Morris Township, Greene County, Pennsylvania, for Equitable Gathering, LLC.
- Assistant Geomorphologist, Letter Report and Graphics. Phase Ia Cultural Resources Investigations, H-162 Pipeline Replacement, Kanawha and Clay Counties, West Virginia, for Dominion Transmission, Inc.
- Technical Editing. Phase I Archaeological and Architectural Survey, Phase II Archaeological Investigation, Ohio Storage Expansion Project, Crawford and Weaver Storage Fields, Fairfield, Hocking, Ashland, and Holmes Counties, Ohio, for Columbia Gas Transmission.
- Technical Editing. Phase Ib Archaeological Survey, North of Muddlety Complex Surface Mines Project, Nicholas County, West Virginia, for Britton Engineering, Inc.
- Archaeological Technician. Phase Ib Survey for Ohio Storage Expansion Project, Fairfield, Hocking, Ashland, and Holmes Counties, Ohio, for Columbia Gas Transmission.
- Graphics. Management Summary, Phase Ib Cultural Resources Investigation Bell Bend Nuclear Power Plant, Luzerne County, Pennsylvania, for Areva NP, Inc and UniStar Nuclear Development, LLC.
- Graphics. Phase Ib / II Archaeological Investigations, Fairmont to I-79 Gateway Corridor and Interchange, Alternatives A and A1, City of Fairmont, Marion County, West Virginia, for HNTB Corporation and West Virginia Department of Transportation.
- Graphics (Spatial Analysis). Technical Report, Archaeological Data Recovery at the Overby Site (46Wa112), US Route 52 Tolsia Highway Project, Wayne County, West Virginia, for Kimley-Horn & Associates and West Virginia Department of Transportation, Division of Highways.
- Report Author / Graphics. Abbreviated Report, Phase I Archaeological Survey, State Route 3003, Section 450, Tunnelton Bridge Replacement, Conemaugh Township, Indiana County, Pennsylvania, for Pennsylvania Department of Transportation Engineering District 10-0.
- Report Author. Management Summary, Phase I Archaeological Survey NIJUS 0009 Pipeline Project, Greene County, Pennsylvania for Equitable Gathering Company.

## 2006-2007

- Archaeological Technician. Responsibilities to GAI Consultants from May 2006 to September 2007 included cleaning, labeling, and cataloging artifacts, general lab organization; fieldwork including shovel testing, test units, pedestrian survey, and feature excavation; digital manipulation of maps and figures prepared for client reports, writing and editing sections of client reports; and geoarchaeological surveying and assessment of landforms and archaeological potential.
- Archaeological Technician / Geoarchaeological Assistant. Phase Ia Survey for H-162 Pipeline Replacement Project, Kanawha and Clay Counties, West Virginia, for Dominion Transmission, Inc.
- Archaeological Technician. Phase Ib/II Survey for Integrated Gasification Combined Cycle generation facility at Great Bend, Meigs County Ohio, for American Electric Power.
- Archaeological Technician. Phase Ib Survey for Falling Water Development Project, Monongalia County, West Virginia, for Backwater Properties, LLC.
- Archaeological Technician. Archaeological Data Recovery of the Philip's Meadow Site (18Ch654), Charles County Maryland, for Dominion Cove Point, LNG, LP.
- Graphics (3-D Modeling). Fort Ethan Allen Cultural Landscape Documentation Report, Arlington, Virginia. Arlington Heritage Alliance, Arlington, Virginia
- Graphics (Spatial Analysis). Technical Report, Phase III Data Recovery Excavations at Site 18Cv151, Calvert County, Maryland, for Dominion Cove Point, LNG, LP.

**DRAFT**

**PHASE I CULTURAL RESOURCES ASSESSMENT  
UPPER OHIO NAVIGATION STUDY  
ECOSYSTEM RESTORATION  
ALLEGHENY AND BEAVER COUNTIES, PENNSYLVANIA**

**PHMC-BHP ER# 1997-1617-042**

**CONTRACT NO. W912QR-08-D-0009**

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Prepared for  
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Submitted to  
U.S. Army Corps of Engineers, Nashville District  
P.O. Box 1070  
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February 2010



**DRAFT PHASE I CULTURAL RESOURCES ASSESSMENT  
UPPER OHIO NAVIGATION STUDY  
ECOSYSTEM RESTORATION  
ALLEGHENY AND BEAVER COUNTIES, PENNSYLVANIA**

**PHMC-BHP ER# 1997-1617-042  
GAI PROJECT NO. C070839.04**

**CONTRACT NO. W912QR-08-D-0009**

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February 2010

  
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February 25, 2010  
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**ABSTRACT**

The U.S. Army Corps of Engineers, Nashville District (Nashville District) contracted with Aerostar Environmental Services, Inc. (AES) and its subconsultant, GAI Consultants, Inc. (GAI), to conduct a Phase I cultural resource assessment of nine Study Areas (SAs) (SA 5, 6, 7, 10, 11, 13, 14, 16, and 18) for a feasibility study of aquatic ecosystem restoration projects as part of the Upper Ohio Navigation Study in Pennsylvania. These nine SAs, totaling 184 acres, are located in Allegheny and Beaver counties. The cultural resource study, conducted in September-December 2009, was performed in accordance with the Statement of Work (SOW).

Cultural resource investigations for all SAs included background research and a preliminary site view (eight aquatic SAs by boat and one aquatic and terrestrial SA viewed by boat and walkover). The SOW specified that a literature review was required to identify known submerged vessels or recorded archaeological sites and mapped resources that might be affected by potential fill placement for the eight aquatic study areas (SA 5, 6, 7, 10, 11, 13, 16, and 18), six (SA 5, 7, 10, 13, 16, and 18) of which will have a tie-in to the riverbank at an undetermined location. Limited subsurface testing was required at SA 14 (Montgomery Slough), the only terrestrial study area.

The literature research indicated that three study areas might impact previously recorded archaeological sites: SA 5, SA14, and SA 16. SA 5 has a high potential to contain intact archaeological remains associated with the former Davis Island Lock and Dam--a NRHP-listed resource. Two previously recorded prehistoric archaeological sites that extend up to the eroded riverbank were documented on SA 16 (Phillis Island). A previously recorded stratified prehistoric village site (36BV9) covered most of SA 14.



The site view and background research determined that none of these study areas has above-grade architectural resources over 50 years old.

Recommendations varied by SA; however, if a study area is selected for an ecosystem project, then a review of interpreted side-scan sonar images is recommended, prior to any ground-disturbing activities, to investigate the potential for submerged cultural resources. In addition, ground reconnaissance and limited subsurface testing are recommended at riverbank tie-in locations for SAs 5, 7, 10, 13, 16, and 18 after the tie-in location has been determined. No subsurface testing is recommended for SA10 if the ground reconnaissance indicates that the tie-in location along the riverbank falls within a waste dump site.

Background research determined that a stratified prehistoric Early to Late Woodland village site (36BV9) covers most of SA 14. The majority of SA14 is heavily disturbed and/or covered by thick fill deposits. Excavations near the northern extent of SA 14 revealed that part of the site is intact within a buried A (Ab) horizon. It is recommended that this part of Site 36BV9 be avoided. If avoidance is not feasible, Phase II testing is recommended to evaluate Site 36BV9 for listing to the National Register of Historic Places under Criterion D.

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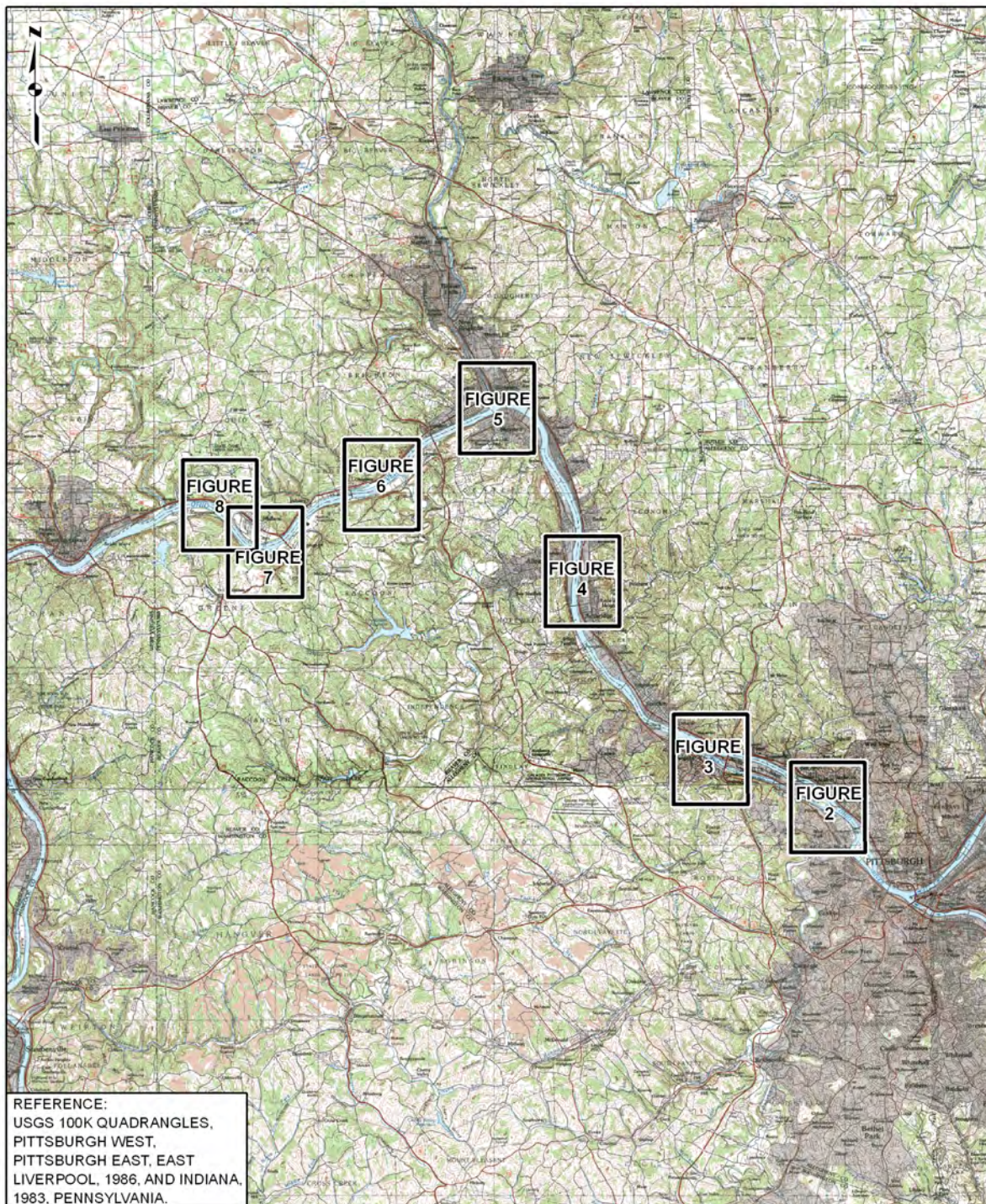
## CHAPTER 1. INTRODUCTION

The Nashville District is conducting a feasibility planning study for modernization of three locks and dam facilities (Emsworth, Dashields, and Montgomery Locks and Dams) on the Ohio River in Pennsylvania as part of the Upper Ohio Navigation Study. It was determined that the feasibility planning study shall also include consideration of ecosystem restoration planning, which will be presented as a separate appendix in the overall Upper Ohio Navigation project's feasibility study for the National Environmental Policy Act (NEPA), Environmental Impact Statement (EIS). The Nashville District identified 16 proposed project sites or study areas (SAs) with a high potential for providing desired aquatic ecosystem restoration benefits in the Upper Ohio River. The Nashville District contracted with AES and its subconsultant, GAI, to conduct a Phase I cultural resource assessment study of the nine SAs that possess the highest potential for ecosystem restoration benefits within the Upper Ohio Navigation Study corridor in Allegheny and Beaver counties, Pennsylvania (Figures 1-8).

Eight of the SAs (5, 6, 7, 10, 11, 13, 16, and 18) involve fill placement below ordinary high water and required only a literature review and site viewing from the river to identify known submerged vessels, mapped resources, and/or recorded cultural resources that might be affected by potential fill placement. SAs 6 and 11 are located entirely within the river and do not involve a tie-in to the shoreline. SA 14 may involve modifications to floodplains or terraces, and required background research, pedestrian reconnaissance, and limited subsurface testing.

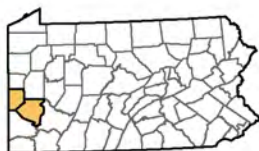
The project was conducted between September and December 2009. The fieldwork was conducted October 5-9, 2009.





REFERENCE:  
USGS 100K QUADRANGLES,  
PITTSBURGH WEST,  
PITTSBURGH EAST, EAST  
LIVERPOOL, 1986, AND INDIANA,  
1983, PENNSYLVANIA.

#### PROJECT LOCATION



ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

#### LEGEND

 FIGURE LOCATION

0 2.5 5 10 Miles

#### FIGURE 1 PROJECT OVERVIEW

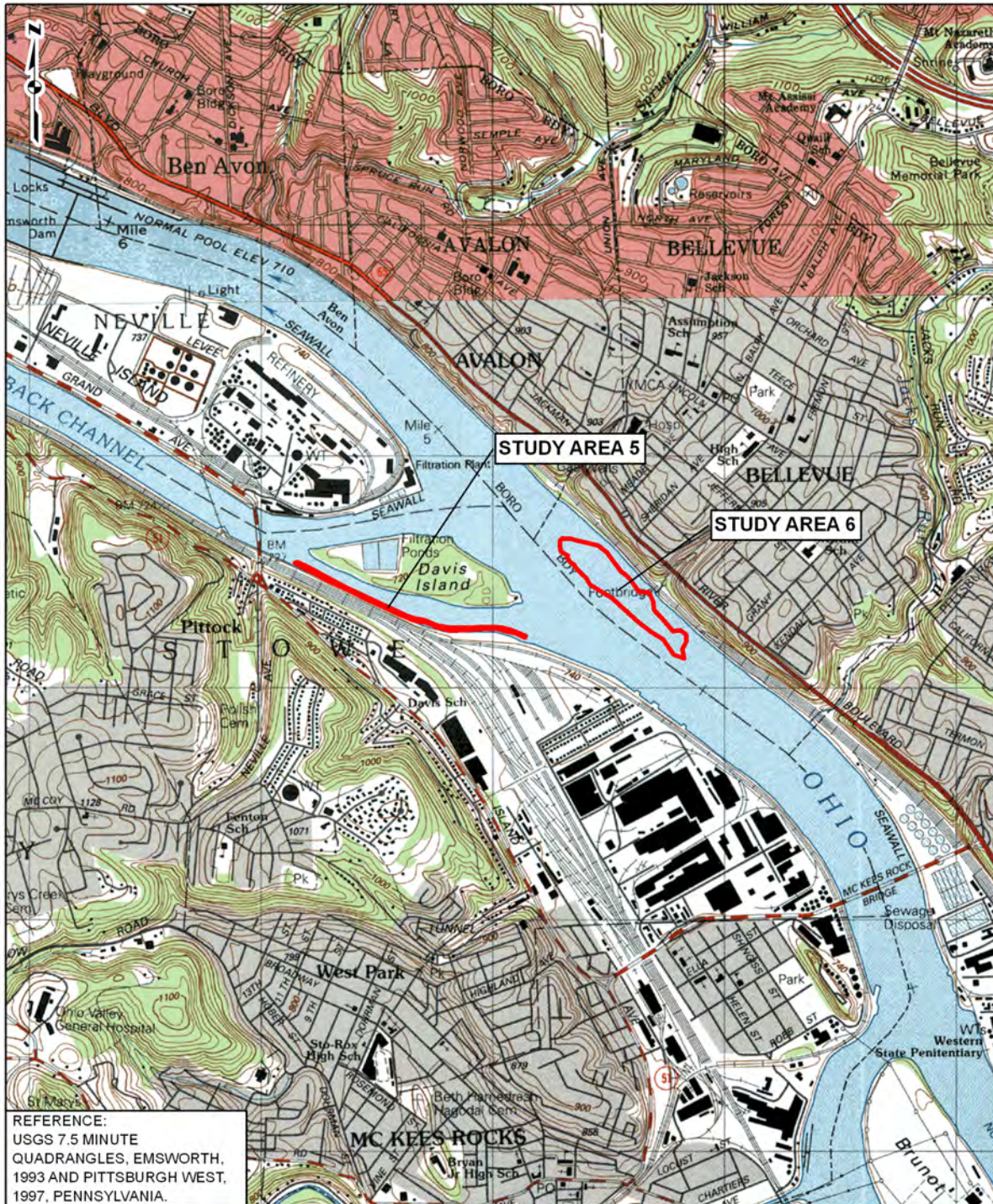


UPPER OHIO NAVIGATION STUDY  
ECOSYSTEM RESTORATION,  
ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

DRAWN BY: AJW  
CHECKED: AKT

DATE: 12/08/2009  
APPROVED: LAF





REFERENCE:  
USGS 7.5 MINUTE  
QUADRANGLES, EMSWORTH,  
1993 AND PITTSBURGH WEST,  
1997, PENNSYLVANIA.

#### PROJECT LOCATION



ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

#### LEGEND

STUDY AREA BOUNDARY

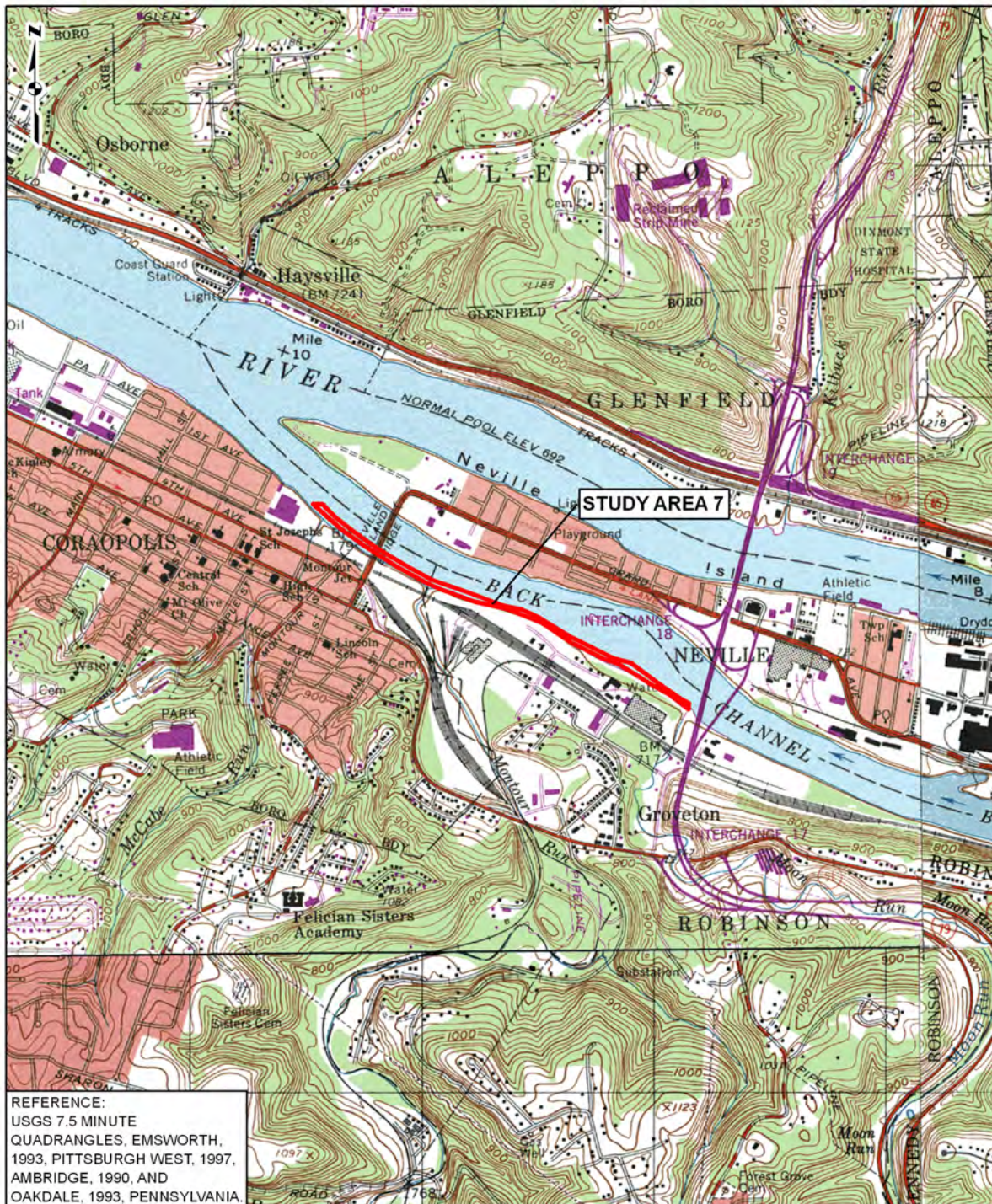
0 1,000 2,000 4,000  
Feet

FIGURE 2  
LOCATION OF STUDY AREAS 5 AND 6

UPPER OHIO NAVIGATION STUDY  
ECOSYSTEM RESTORATION,  
ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

DRAWN BY: AJW DATE: 12/08/2009  
CHECKED: AKT APPROVED: LAF





REFERENCE:  
USGS 7.5 MINUTE  
QUADRANGLES, EMSWORTH,  
1993, PITTSBURGH WEST, 1997,  
AMBRIDGE, 1990, AND  
OAKDALE, 1993, PENNSYLVANIA.

#### PROJECT LOCATION



ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

#### LEGEND



STUDY AREA BOUNDARY

0 1,000 2,000 4,000  
Feet

FIGURE 3  
LOCATION OF STUDY AREA 7

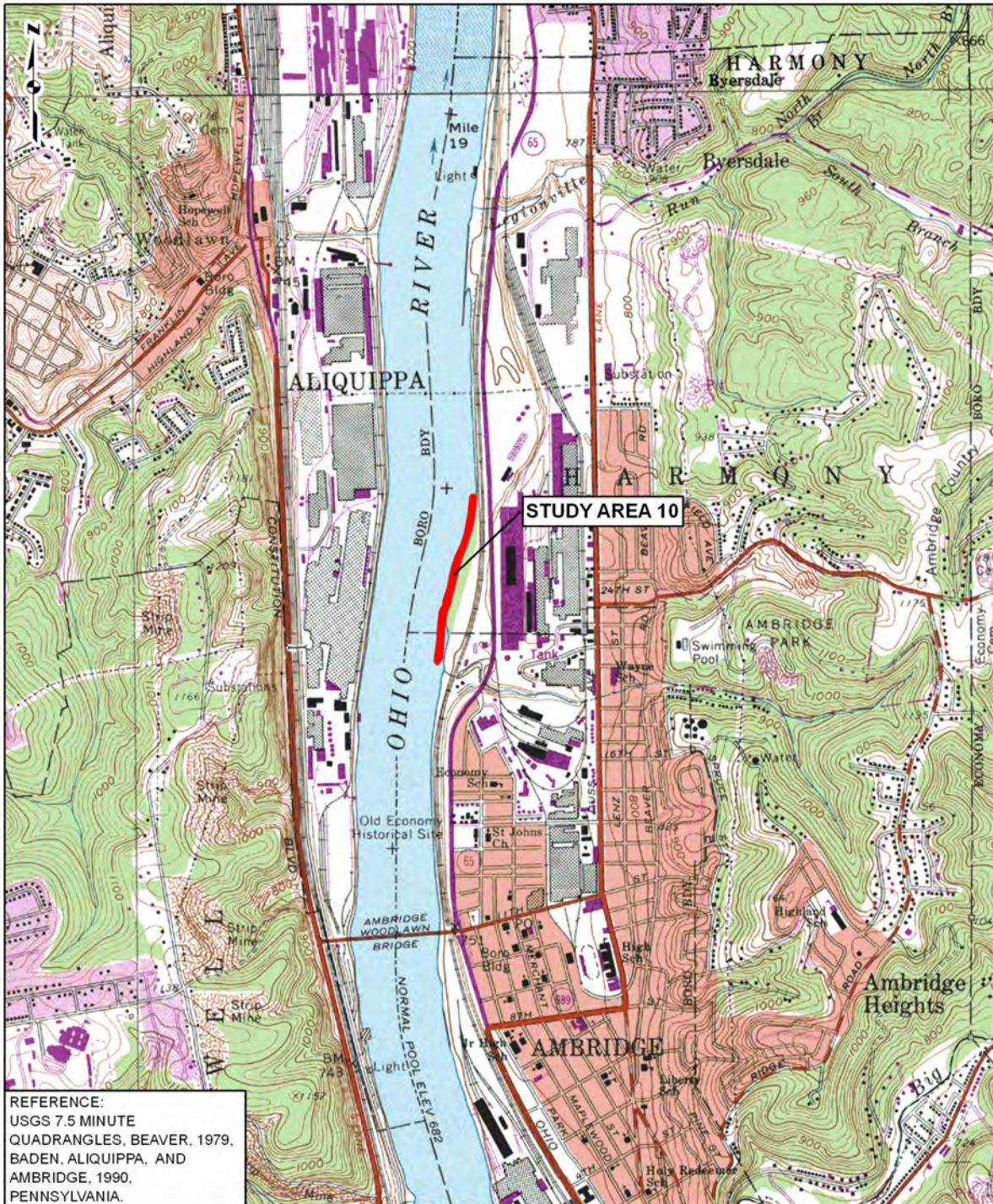
UPPER OHIO NAVIGATION STUDY  
ECOSYSTEM RESTORATION,  
ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA



DRAWN BY: AJW  
CHECKED: AKT

DATE: 12/08/2009  
APPROVED: LAF





REFERENCE:  
USGS 7.5 MINUTE  
QUADRANGLES, BEAVER, 1979,  
BADEN, ALIQUIPPA, AND  
AMBRIDGE, 1990,  
PENNSYLVANIA.

#### PROJECT LOCATION




ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

#### LEGEND

 STUDY AREA BOUNDARY

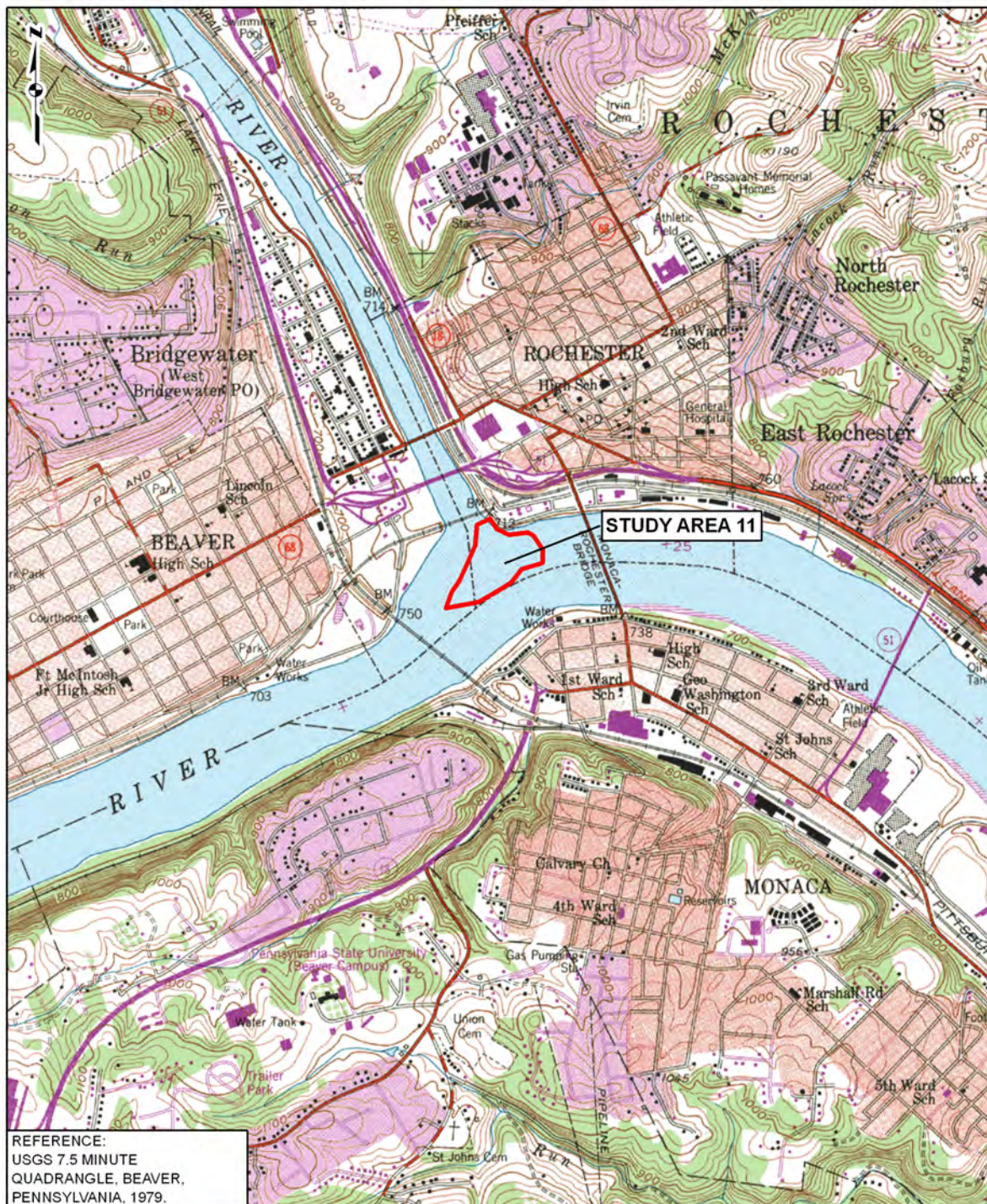
0 1,000 2,000 4,000  
Feet

FIGURE 4  
LOCATION OF STUDY AREA 10

 UPPER OHIO NAVIGATION STUDY  
ECOSYSTEM RESTORATION,  
ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

DRAWN BY: AJW DATE: 12/08/2009  
CHECKED: AKT APPROVED: LAF





REFERENCE:  
USGS 7.5 MINUTE  
QUADRANGLE, BEAVER,  
PENNSYLVANIA, 1979.

#### PROJECT LOCATION



ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

#### LEGEND



STUDY AREA BOUNDARY

0 1,000 2,000 4,000  
Feet

FIGURE 5  
LOCATION OF STUDY AREA 11

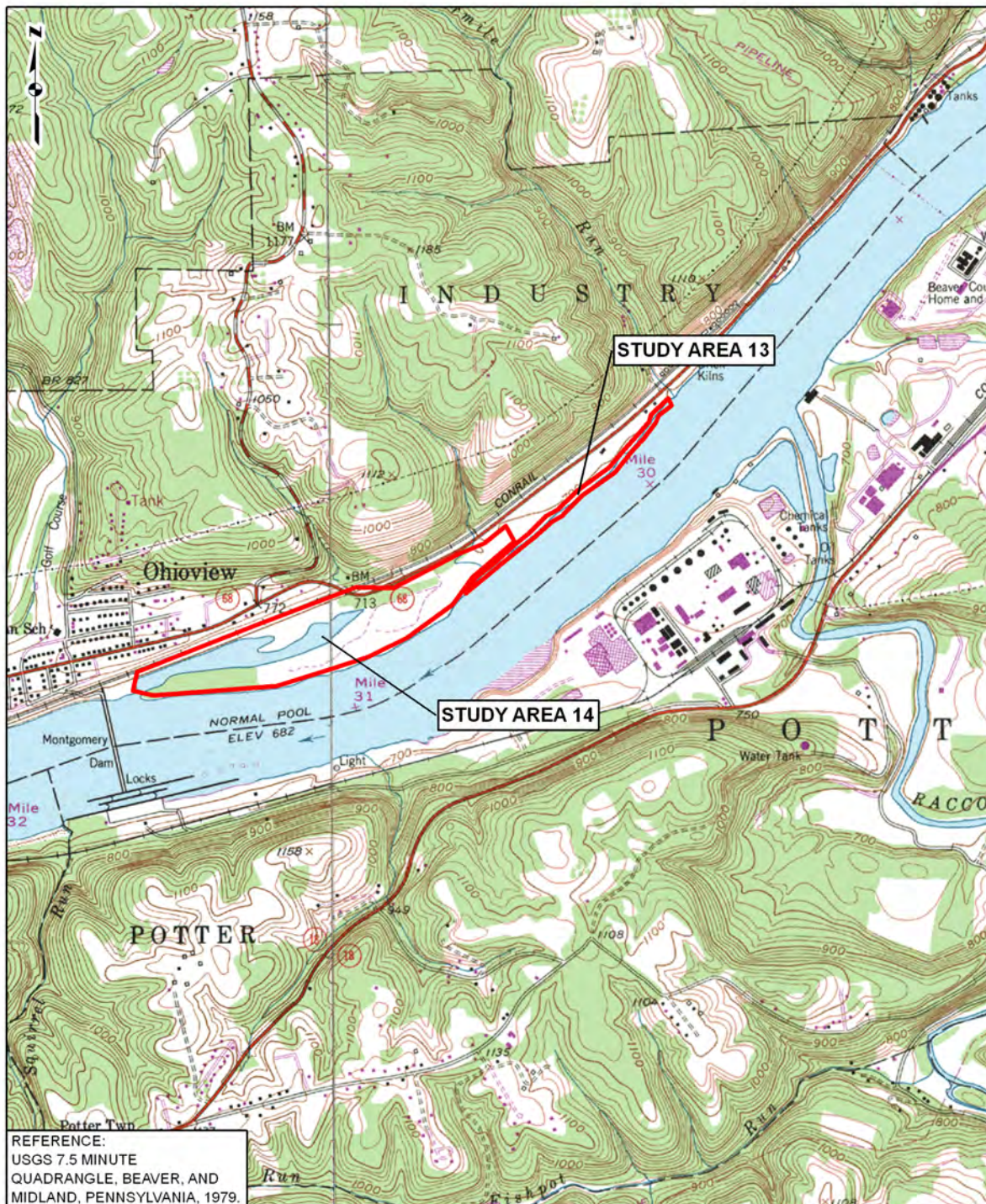


UPPER OHIO NAVIGATION STUDY  
ECOSYSTEM RESTORATION,  
ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

DRAWN BY: AJW  
CHECKED: AKT

DATE: 12/08/2009  
APPROVED: LAF





REFERENCE:  
USGS 7.5 MINUTE  
QUADRANGLE, BEAVER, AND  
MIDLAND, PENNSYLVANIA, 1979.

#### PROJECT LOCATION



ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

#### LEGEND

STUDY AREA BOUNDARY

0 1,000 2,000 4,000  
Feet

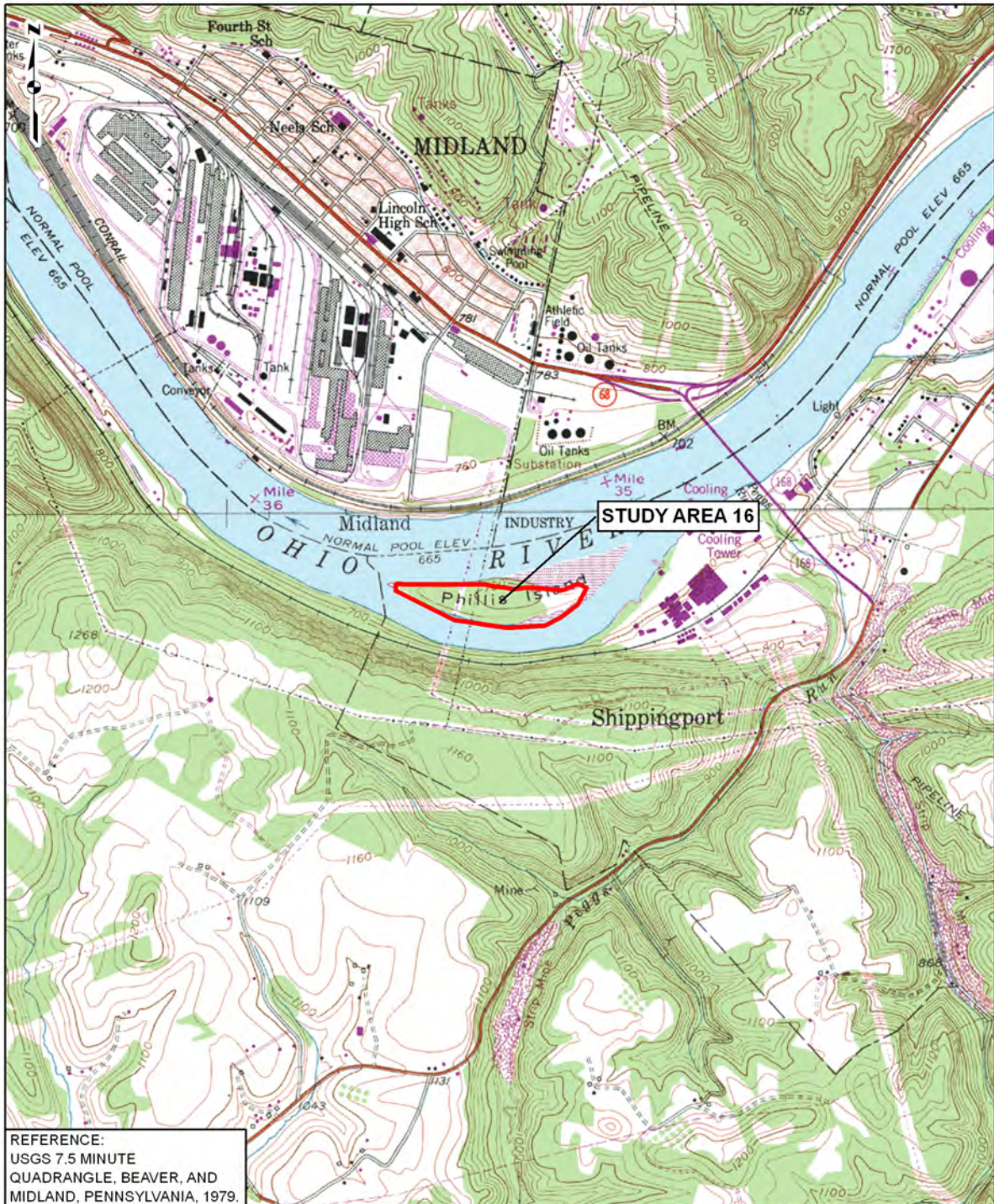
FIGURE 6  
LOCATION OF STUDY AREAS 13  
AND 14

UPPER OHIO NAVIGATION STUDY  
ECOSYSTEM RESTORATION,  
ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

DRAWN BY: AJW  
CHECKED: AKT

DATE: 12/08/2009  
APPROVED: LAF





REFERENCE:  
USGS 7.5 MINUTE  
QUADRANGLE, BEAVER, AND  
MIDLAND, PENNSYLVANIA, 1979.

#### PROJECT LOCATION



ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

#### LEGEND

STUDY AREA BOUNDARY

0 1,000 2,000 4,000  
Feet

FIGURE 7  
LOCATION OF STUDY AREA 16

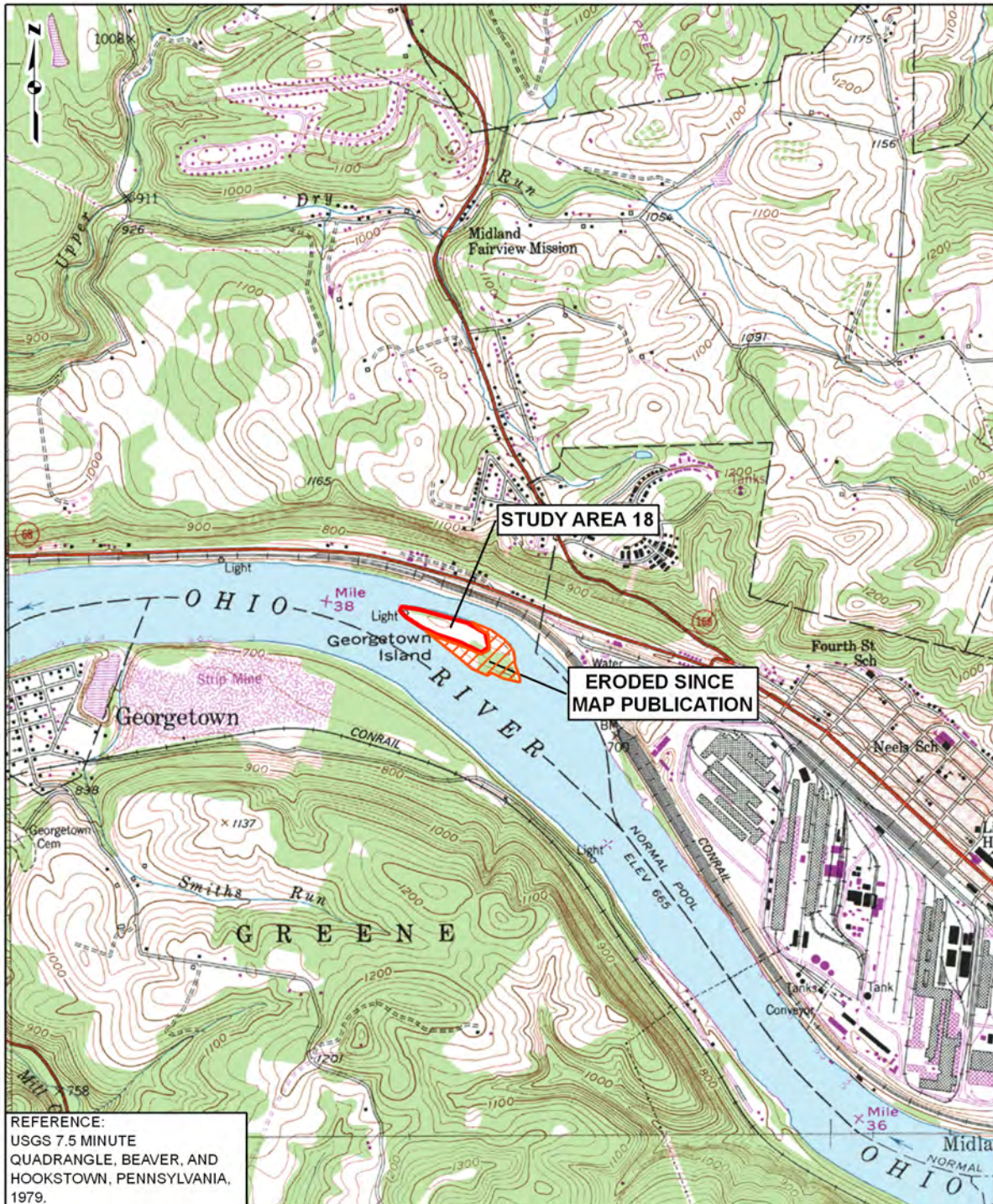


UPPER OHIO NAVIGATION STUDY  
ECOSYSTEM RESTORATION,  
ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

DRAWN BY: AJW  
CHECKED: AKT

DATE: 12/08/2009  
APPROVED: LAF





REFERENCE:  
USGS 7.5 MINUTE  
QUADRANGLE, BEAVER, AND  
HOOKSTOWN, PENNSYLVANIA,  
1979.

#### PROJECT LOCATION



ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

#### LEGEND

STUDY AREA BOUNDARY

0 1,000 2,000 4,000 Feet

FIGURE 8  
LOCATION OF STUDY AREA 18

UPPER OHIO NAVIGATION STUDY  
ECOSYSTEM RESTORATION,  
ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA



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DATE: 12/08/2009  
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The SA boundaries are not finalized at this time. Therefore, Phase I background research included a review of cultural resources within a 0.25-mile radius of each SA's area of potential effects (APE). The purpose of this Phase I cultural resources assessment study is to provide information on these nine potential ecosystem restoration SAs in compliance with federal regulations and to provide data that can be factored into the ecosystem benefit analysis.

The Statement of Work (SOW) included a review of interpreted side-scan sonar images on file at the U.S. Army Corps of Engineers, Pittsburgh District (Pittsburgh District) to consider potential aquatic cultural resources. It was later determined that the side-scan sonar images on file at the Pittsburgh District had not been interpreted and, consequently, the review of side-scan sonar data is not included in this report. The map research included the review of a 1939 aerial photograph, 1876 atlas map, 1877 map of the Ohio River, and several USGS topographic quadrangle maps. In addition, other atlas maps, an 1828 map of the Ohio River, and other aerial photographs were reviewed when available.

### **Project Study Areas**

The SAs varied in size and location. SAs 5, 6, and 7 are located in Allegheny County, while the remaining six areas are located in Beaver County. SA 5 consists of an approximately 2.41-acre parcel located on the western bank of the Ohio River opposite Davis Island and north of McKees Rocks. SA 6 consists of a 17.79-acre parcel located entirely within the Ohio River (see Figure 2). SA 7 is comprised of an approximately 9.78-acre parcel located on the southwestern bank of the Ohio River, south of Neville Island (see Figure 3). SA 10 consists of a 2.98-acre parcel located on the eastern bank of

the Ohio River near the mouth of Economy Run (see Figure 4). SA 11 is a 19.62-acre parcel located entirely within the river at the confluence of the Beaver and Ohio rivers (see Figure 5). SA 13 consists of an 8.37-acre parcel located on the northern bank of the Ohio River just west of where Fourmile Run empties into the Ohio. SA 14 is comprised of an approximately 89.67-acre parcel situated between SA 13 and Montgomery Dam (see Figure 6). SA 14 includes the only terrestrial portion of the project. SA 16 consists of an approximately 26.44-acre parcel surrounding Phillis Island, near the town of Midland (see Figure 7), while SA 18 consists of a 7.26-acre parcel surrounding Georgetown Island, near the town of Georgetown (see Figure 8). Each study area is assessed and reported separately within this Phase I cultural resources assessment study report.

The terrestrial component of the project varies by study area. SAs 6 and 11 are located entirely within the river and do not involve a tie-in to the shoreline. Six of the SAs (5, 7, 10, 13, 16, and 18) involve fill placement below ordinary high water with a terrestrial tie-in located along the riverbank. The remaining area (SA 14) includes terrestrial and submerged activities.

### **Area of Potential Effect (APE)**

The APE for archaeological, architectural, and historical resources was defined in consultation with the Nashville District as the footprints of the nine proposed ecosystem restoration areas, which comprise approximately 184.31 acres (Table 1).

**Table 1. Study Locations and Cultural Resources Testing Required under SOW**

Location	Planned Activity	Approx. Area (acres*)	Cultural Resource Tasks (as specified in the SOW)
SA 5	Foreshore dike parallel to bank creating enhanced aquatic habitat between bank and dike	2.41	Background Research; No Field Testing
SA 6	Substrate enhancement and contouring to create enhanced aquatic habitat	17.79	Background Research; No Field Testing
SA 7	Foreshore dike parallel to bank creating enhanced aquatic habitat between bank and dike	9.78	Background Research; No Field Testing
SA 10	Foreshore dike parallel to bank creating enhanced aquatic habitat between bank and dike	2.98	Background Research; No Field Testing
SA 11	Substrate enhancement and contouring to create enhanced aquatic habitat at gravel bar at mouth of Beaver River	19.62	Background Research; No Field Testing
SA 13	Foreshore dike parallel to bank creating enhanced aquatic habitat between bank and dike	8.37	Background Research; No Field Testing
SA 14	Improve wetlands, remove invasive species, plant native species	89.67	Background Research; Up to 16 Judgmental STPs
SA 16	Ring dike parallel to island bank to create enhanced aquatic habitat between dike and island bank	26.44	Background Research; No Field Testing
SA 18	Ring dike parallel to island bank to create enhanced aquatic habitat between dike and island bank	7.26	Background Research; No Field Testing
<b>Total</b>		<b>184.31</b>	<b>Background Research of 9 SAs; Up to 16 Judgmental STPs</b>

### Regulatory Guidelines

The cultural resource assessment study is part of a NEPA EIS report and is subject to applicable federal regulations. The study meets Section 106 of the National Historic Preservation Act (NHPA) of 1966 guidelines. The cultural resource assessment, which was performed in accordance with the SOW, also meets the requirements of the Pennsylvania Bureau for Historic Preservation's (2008) *Cultural Resource Management in Pennsylvania: Guidelines for Archaeological Investigations*.

### Project Staff

This project was undertaken under the supervision of Lori Frye, M.A., RPA, Principal Investigator, and Alyssa K. Trimmer, M.A., RPA, Field Director. Field crew

included Joe Fedor and Corry Laughlin. Colleen Dugan conducted background research and analyzed the artifacts. Amanda Wasielewski prepared report figures.

### **Report Organization**

The report is divided into six chapters. Chapter 1 provides an introduction to the project. Chapters 2 and 3 discuss the environmental and cultural settings, respectively. Chapter 4 describes the methods used to complete this investigation. The results are presented in Chapter 5 followed by a summary of the findings and recommendations in Chapter 6.

The report also includes five appendices. Appendix A provides a copy of the PHMC Report Summary Form. The Scope of Work is presented in Appendix B. The revised PASS for Site 36Bv9 is located in Appendix C. The artifact catalog for this site is located in Appendix D. The resumes of key personnel are presented in Appendix E.



## **CHAPTER 2. ENVIRONMENTAL SETTING**

### **Physiography and Geology**

The SAs fall within the unglaciated Pittsburgh Low Plateau section of the Appalachian Plateaus Province (Berg et al. 1989; Fenneman 1938; Thornbury 1965; Sevon 2000) (Figure 9). The Appalachian Plateaus Province is characterized by relatively flat-lying predominately clastic rocks that are higher in elevation and younger in age than surrounding provinces (Thornbury 1965). Undulating surfaces, narrow shallow valleys, and less folding and uplifting than adjacent sections of the Appalachian Plateau typify the unglaciated Pittsburgh Low Plateau section. Drainage patterns are generally dendritic with both the Allegheny and Beaver rivers serving as major drainageways for Late Wisconsin glacial outwash.

The sedimentary bedrock found in Allegheny and Beaver counties consists of sandstone, coal, shale, limestone, and siltstone, which may be visible along embankments. Bedrock geology for these areas falls within the Conemaugh Group (an upper Pennsylvanian-age deposit) and the Allegheny Group (a middle Pennsylvanian-age deposit) (Socolow 1980). The Allegheny Group represents upper delta plain facies, while the Conemaugh Group is associated with lower delta plain facies (Wagner et al. 1970).

The Conemaugh Group is divided into the stratigraphically higher Casselman Formation and the lower Glenshaw Formation; Ames limestone separates these two formations. The Casselman Formation is comprised of a cyclic sequence of shale, sandstone, siltstone, marine limestone, and red beds (associated with slides) formed in a lower delta environment. Thin, non-persistent, coal beds are also present. The Glenshaw





Formation is identified by widespread marine limestone and shale units found in stratigraphic succession (Edmunds et al. 1999).

### **Hydrology, Soils and Geomorphology**

The study areas are situated within the Ohio River channel, except for SA 14, which is located where a stream enters the Ohio River. Many large tributaries empty into the Ohio River within the 38-mile Upper Ohio Navigation Study area. Most notable is the Beaver River, which empties into the Ohio River near River Mile 25.5. Chartiers Creek and Raccoon Creek are also major drainages that empty into the Ohio River.

There are numerous islands within the Ohio River—a remnant of the braided river channel present before the construction of locks and dams. The pools behind these navigation structures affect erosion of the islands and riverbanks. The Ohio River has been subjected to major floods, which result in both scouring and soil deposition on the riverbanks and the islands. Flooding may have made many of the small islands uninhabitable. Brunot Island, Davis Island, and Neville Island are higher and are suitable for a variety of activities. Neville Island, for instance, known for its fertile agricultural fields and quality produce in the nineteenth century, shifted to use as an industrial area during the twentieth century due to its easy access to river transportation.

Eight of the nine SAs fall within the Ohio River channel and do not have associated soil types. The Ohio River valley is mapped with Pope Association in the floodplains and Conotton Association on high terraces. Pope (Po) soils are well drained and began to form in the Late Holocene. Conotton (Co) soils are well drained to excessively drained soils that formed in glacial outwash materials on kames and terraces.

Philo (Ph) silt loams are moderately well drained level to relatively level soils consisting of alluvial soils derived from sedimentary rock found on floodplains.

Industrial development contributed to the dumping of waste material along the riverbank. Areas in the soil survey designated as Dumps (Du) soils refer to industrial waste deposits and may be barren due to the toxic nature of the steel, chemical, or other industrial waste material.

After the 1936 flood on the Ohio River, fill was brought in to stabilize shorelines in some areas. These fill deposits are designated as Urban Lands (Ub) in the U.S. Department of Agriculture county soil surveys if there is more than two feet of fill. This designation is also used in urban areas with disturbed soils.

### **Modern and Past Climates**

During the Wisconsin glaciation of the Pleistocene, the Laurentide ice sheets reached their maximum extent in eastern North America between 21,000 and 17,000 B.P., extending as far south as the northern Beaver County line in western Pennsylvania (Crowl and Sevon 1999:226).

The environment of southwestern Pennsylvania has undergone dramatic changes throughout the last 17,000 years. Palynological data revealed a boreal spruce forest-dominated southwestern Pennsylvania 17,000 years ago (Delcourt and Delcourt 1980:145-147). North America experienced relatively rapid climatic warming between 14,000 and 11,000 years ago; pollen evidence indicates a Mixed Coniferous-Northern Hardwood, dominated by spruce and pine, migrated into much of the Midwest during the same period (Delcourt and Delcourt 1980:147; Gates 1993:84; Stingelin 1965).

Cave and sinkhole deposits in Bedford and Centre counties revealed that between 11,300 and 9000 BP, the climatic shift to a more temperate environment coincided with the disappearance of “Pleistocene megafauna” and the introduction of more temperate mammal species (Guilday 1967; Kurten and Anderson 1980). Vertebrate and pollen remains found at Meadowcroft Rockshelter indicate that by 11,500 B.P., the region had temperate “Carolinian” fauna, as well as oak, hickory, and pine forest, suggesting the initial emergence of the Mixed Mesophytic forest (Adovasio et al. 1998:11). This more temperate climate marks the beginning of the Holocene.

The gradual climate warming-and-drying trend during the hypsithermal interval (10,000 - 5000 B.P.) led to a decline in cool-adapted boreal forest species and an increase in hardwood species. An oak-hickory-hemlock-beech assemblage dominated this Mixed Hardwood Forest (Delcourt and Delcourt 1980:143, 150). By 4000 B.P., the climate was essentially the same as the modern climate.

Currently, the region has a humid continental climate with warm summers and cold winters, and a relatively even yearly distribution of precipitation (Newberry et al. 1981; Taylor et al. 1968; Trewartha 1967). In the Appalachian Plateaus Province, winters are cold, snowy, and cloudy with a 35% to 40% possibility for sunshine. Allegheny County has an average daily high temperature of 83° F in July, and an average daily low temperature of 19°F in January (Newberry et al. 1981). Annual precipitation ranges from 36-40 inches a year. Beaver County has a similar climate with an average temperature of 30°F in January, and the annual precipitation averages 38 inches a year (Taylor et al. 1968).

### **Flora**

The SAs fall within a massive Mixed Mesophytic forest (Braun 1950) that became entrenched during the Holocene (Guilday et al. 1964). These forests typically include canopies of beech, chestnut, maple, tulip trees, basswood, red oak, white oak, buckeye, and hemlock. Smaller trees include dogwood, redbud, sourwood, ironwood, magnolias, holly, hornbeam, and service berry (Braun 1950:43). These forests provided vast quantities of nut masts for Native American exploitation, including walnuts, butternuts, hickory nuts, and chestnuts.

### **Fauna**

Prehistoric faunal assemblages in the Appalachians reveal a rich and diverse fauna for forager exploitation. White-tailed deer was the most common species identified. Other species available for use by prehistoric populations included black bear, elk, bobcat, wolf, cougar, river otter, raccoon, squirrel, rabbit, fox, beaver, and woodchuck. Except for the extinction of certain large animals (elk, wolf, and cougar) and increases in other species populations (white-tailed deer, turkey, and woodchuck), the mammal composition of the area is little changed from early historic times (Shelford 1963).

Avian and aquatic species also formed part of the subsistence base. The waterways attract ducks and geese. The river is also home to more than 20 families of fish including gar, lampreys, sturgeon, paddlefish, bowfin, mooneye, tarpan, herring, suckers, catfish, pike, mudminnows, trout, burbot, perch, killfish, bass, sunfish, and drum fish, along with various mollusk species.

### **CHAPTER 3. CULTURAL SETTING**

The following summaries of the prehistory of southwestern Pennsylvania, including Allegheny and Beaver counties, provide an archaeological and historical context for assessing potential site significance.

#### **Paleoindian (11,500 to 10,000 BP)**

The earliest occupation of North America occurred during the Paleoindian period prior to 8000 B.C. Radiocarbon dates of 10,000 BP to 11,000 BP have been recorded at Meadowcroft Rockshelter in southwestern Pennsylvania (Adovasio et al. 1978). Based on the distribution of diagnostic artifacts, typically made of exotic lithic raw materials, Paleoindian populations were highly mobile bands of hunters and gatherers who inhabited major river valleys and focused their travels along low-order streams (Lantz 1984). Sites are marked by artifact scatters of fluted-stone spear points and flake tools used for cutting and scraping tasks.

Lantz (1984) reports 210 sites with Paleoindian components in the drainage of the Upper Ohio Valley in western Pennsylvania. The majority of Paleoindian points and sites are found on lowland terraces of small tributaries in the glaciated portions of northern Pennsylvania. In unglaciated regions, Paleoindian sites are found in more diverse elevations and exhibit less spatial patterning (Lantz 1985:180).

#### **Archaic Period**

##### ***Early Archaic (10,000 to 8000 BP)***

The beginning of the Archaic period in eastern North America is generally associated with the onset of the Holocene, which directly followed the end of Pleistocene glaciation. This period is not well understood, but it appears that groups were highly



mobile and may have sustained a significant population increase (Carr 1998a: 49, 60 and Stewart and Katzer 1989). Sites are more common near the confluence of streams (Adovasio et al. 1998:18). The warmer, drier, climate meant that Early Archaic foragers did not have megafauna available and instead procured a more diversified set of resources than their Paleoindian ancestors.

A technological change in projectile point manufacture and forms, from fluted to notched and stemmed bifaces, is believed to represent changes in the hafting of these projectiles to dart or spear shafts. Early Archaic diagnostic projectile point types in the Upper Ohio Valley include Kirk corner-notched, Kirk stemmed, LeCroy, and Kanawha stemmed points (Raber et al. 1998).

### ***Middle Archaic (8000 to 5000 BP)***

The Middle Archaic is poorly understood due to a paucity of documented Middle Archaic sites in Southwestern Pennsylvania. Middle Archaic settlement in western Pennsylvania likely consisted of base camps positioned on Holocene-age river terraces, smaller resource procurement stations (for plant and animal acquisition) in upland settings, and lithic reduction stations near outcrops of suitable stone for tool manufacture (Carr 1998b; Cowin 1991; George 1985; Stewart and Kratzer 1989). Carr (1998b: 88) notes a significant population increase during the Middle Archaic based on PASS site file data. Point types indicative of the Middle Archaic period typically include Stanly, Big Sandy II, and Otter Creek points, with rare examples of Morrow Mountain and Guilford type bifaces (Cowin 1991:46).

***Late Archaic (5000 to 3000 BP)***

The Late Archaic period experienced major environmental changes, including a continued rise in sea level and an increased availability of estuarine resources. These environmental changes affected cultural changes, including continued population growth, an increased shift to logistically oriented subsistence/settlement patterns, and the establishment of exchange networks. Late Archaic Native American populations on the Appalachian Plateau developed a well-defined schedule of resource exploitation. Site types included large, perhaps multi-seasonal, base camps generally associated with larger rivers, suggesting intensified exploitation of riverine resources; small, short-term upland base camps; and extraction sites are found in both upland and lowland areas (Stewart and Kratzer 1989).

Diagnostic artifacts of this time period include Lamoka, Steubenville stemmed and lanceolate points, Brewerton notched points, and varieties of broad-bladed and narrow-stemmed projectile points (Mayer-Oakes 1955; George 1985). There was also an increase in the use of “non-projectile point flaked stone” technologies, including expedient flake tool and non-lithic types. Adovasio et al. (1998:20) interpret these data to mean that there was “a greater array of functional activities and techno-economic strategies involving the base camps of this period.”

**Woodland Period*****Early Woodland (3000 BP to 2100 BP)***

Diagnostic Early Woodland traits include the introduction and use of ceramic vessels and an increased reliance on horticulture and sedentism (Cowin 1985). The emergence of the Adena cultural complex in the Central Ohio Valley influenced groups

eastward into New York and New Jersey, and directly involved populations in western Pennsylvania. Adena and Adena-related Early Woodland occupations in the upper Ohio Valley are reflected by accretional burial mounds and other earthworks constructed between 400 BC and AD 250 (Mayer-Oakes 1955; Dragoo 1963; Clay 1991).

Ceramics generally function as cultural horizon markers for archaeologists who study the Woodland period. Early Woodland pottery is characterized as thick-walled, flat-bottomed, and coarse grit-tempered. Diagnostic projectile points include Adena and Cresap Stemmed points. Ethnobotanical remains from various Early Woodland sites suggest that while domesticates were introduced, they were dominated by the use of widely available wild plant foods (Adovasio and Johnson 1981; Ballweber 1989).

### ***Middle Woodland (2100 BP to AD 900)***

The Middle Woodland period is characterized by an elaboration in burial ceremonialism, widespread interregional exchange, and increased importance of indigenous cultigens. The first use of maize as a cultigen may date to this period. After the end of Adena-related ceremonialism circa AD 250, the Hopewell complex flourished and brought cultures in western Pennsylvania directly and/or indirectly into its exchange networks (Kent et al. 1971). Large multiseasonal base camps or villages on terraces above major streams, and smaller seasonal base camps and extraction loci in the uplands, are typical of the Middle Woodland settlement pattern (MacDonald 2002). Diagnostic projectile points include a variety of notched and expanding stemmed forms, while ceramic vessels continue to be grit-tempered, with cordmarking a common surface treatment (MacDonald 2002).

***Late Woodland (AD 900 to 1600)***

The Late Woodland period in southwestern Pennsylvania was typified by a complex of cultural traits identified as Monongahela. Monongahela sites have been recorded across much of western Pennsylvania, with a core of settlement centered near the Monongahela and Youghiogheny rivers (Cowin 1985; Johnson et al. 1989). During this period, subsistence activities shifted to a heavy reliance on maize production. Characteristic of a Late Woodland settlement pattern, large multi-seasonal villages (generally circular and often fortified with a round or oval stockade) were typically situated on upland hilltops and saddles. Houses were arranged around a central circular plaza and were abutted by large circular storage pits (Bennett and Porter 1986:17). Social organization became more complex during the Late Woodland period and led to the emergence of tribal societies. Chesser notched, Jack's Reef corner-notched, Levanna and Hamilton triangular points (Justice 1987), as well as Backstrum side-notched (George 1992), are all diagnostic projectile points of the Late Woodland.

***Protohistoric and Contact Period (AD 1600-1758)***

The Protohistoric/Contact period represents a change from the Late Woodland subsistence-settlement systems. Sites documenting the Monongahela/Protohistoric transition and the early Protohistoric/Contact period include the Foley Site and the Throckmorton Site (Nass 1995:81) in western Pennsylvania. These sites represent Monongahela-like lifeways on which increasing trade and conflict were superimposed. During Early Contact times, western Pennsylvania was occupied by a variety of Native American groups, most notably the Iroquois, the Shawnee, and the Delaware (Goddard 1978; Hunter 1978; Lounsbury 1978).

### **Historic Period (1758-1950)**

Europeans first began exploring the upper Ohio Valley as early as the seventeenth century, and it was not long before both the French and the English held claims over the land west of the Appalachian Mountains. While both countries were involved in trading activities, the English also wanted to possess the land for agricultural uses, whereas the French focused primarily on trading, missionary, and military activities. Through their trading and missionary work, the French were able to establish relationships with the Native Americans, something that the English lacked (Bausman 1904: 37). The French and English began denying each other access to these lands and, consequently, the French and Indian War ensued.

The English victory in 1759 led many settlers to believe the lands west of the Alleghenies would open for settlement. However, Native Americans still occupied much of this land and were not willing to give it up. Therefore, early settlement was slow due to the constant threat of Indian conflict. In an attempt to further western settlement, U.S. General Anthony Wayne led an attack on the Native Americans of the Ohio Valley at the Battle of Fallen Timbers in 1794. The U.S. forces emerged victorious. The defeat of the Native Americans led to the signing of the Treaty of Greenville in 1795, which officially opened the western land to settlement.

Allegheny County was formed on September 24, 1788, out of Westmoreland and Washington counties. Pittsburgh became the county seat in 1791 (Miller et al. 2000: 19). The first portion of Beaver County to be settled by Europeans was the area that lies south of the Ohio River (Bausman 1904: 168). On March 12, 1800, Beaver County was formed out of Allegheny and Washington counties and was named after the Beaver River.

Land in the Ohio and Beaver River valleys was fertile, and agriculture became a driving force of the economy. In the early-to-mid nineteenth century, corn and wheat were the principal agricultural crops of the area. However, barley, oats, rye, and corn also became significant products (Bausman 1904: 279). Farmers found a large wool market in the woolen mills near Pittsburgh (Miller et al. 2000: 22).

Natural resources also proved profitable to the region. The area was recognized for its sandstone, limestone, fire clay, and coal extractive industries. An oil boom began in Pennsylvania in 1859, and Allegheny and Beaver counties were among the counties that profited accordingly. In the 1880s, natural gas was tapped in Allegheny County.

Transportation networks facilitated settlement of the area and were important to the industrial development of Allegheny and Beaver counties. The Pennsylvania Road (now Route 30), which opened in 1818, stretched from Pittsburgh to Philadelphia. The National Road (now Route 40), which also opened in 1818, extended from Wheeling, West Virginia, through Pennsylvania, to Cumberland, Maryland (Miller et al. 2000: 21). In 1852, the Pennsylvania Railroad opened a line connecting Pittsburgh to Philadelphia through Harrisburg (Treese 2003: 221). Other significant railroads constructed in southwestern Pennsylvania include the Pittsburgh and Lake Erie Railroad; Pittsburgh, Youngstown, and Ashtabula Railroad; Cleveland and Pittsburgh Railroad; and Ohio and Pennsylvania Railroad (Bausman 1904: 238, 259, 265). The Davis Island Lock and Dam, the first lock and dam constructed on the Ohio River, was completed in 1885. Other navigation improvements quickly followed.

Southwestern Pennsylvania emerged as an industrial and manufacturing leader on a worldwide scale. In Beaver County, boat building became an important industry,



producing keelboats, cotton boats, flatboats, and steamboats. Important early industries in Allegheny County included glass manufacturing, boat building, nail and wire manufacturing, iron smelting, tanning, and tool making (Fleming 1922:470-472). The steel industry was established in Allegheny and Beaver counties during the late-nineteenth century, after the development of the Bessemer process. Southwestern Pennsylvania continued its industrial dominance through the first half of the twentieth century, due largely to the increased demands associated with World Wars I and II.

The late-twentieth century saw changes in the local economy. The 1970s saw a decline in manufacturing, and the 1980s brought a nationwide collapse of the steel industry. Over 400 steel mills closed, and more than 200,000 steel workers lost their jobs. Today, the economy of Southwestern Pennsylvania is centered on education, health care, technology, and professional services (Miller et al. 2000: 31).

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## CHAPTER 4. METHODOLOGY

The cultural resources assessment study included background research, field view, and limited subsurface testing.

### **Background Research**

In advance of fieldwork, GAI conducted background research at the Pennsylvania Historical and Museum Commission-Bureau for Historic Preservation (BHP) in Harrisburg and the state's online Cultural Resources Geographic Information System (CRGIS). Background research was undertaken to: (1) identify previously recorded resources within and near the nine study areas; (2) develop an environmental and cultural context to aid in evaluation of identified resources; and (3) provide data to indicate areas that may be sensitive for cultural resources. The research included examining reports on previously surveyed areas, Pennsylvania Archaeology Site Survey (PASS) forms, Pennsylvania Historic Resource Survey (PHRS) forms, and National Register of Historic Places (NRHP) listings located within or immediately adjacent to the nine Study Area APEs. Published histories, environmental studies, and architectural histories for Allegheny and Beaver counties were also consulted.

Another important part of the background research included a review of available maps and aerial photographs for each SA to: (1) assist in evaluating the potential of the SAs to contain structures and historic-era archaeological sites, (2) examine development of the areas over time, and (3) provide insights into past land use activities that may affect soil conditions. Cartographic research typically included review of 1828 maps of the Ohio River and immediate vicinity (provided by the USACE, Pittsburgh District), at least three USGS topographic maps, 1876 Allegheny and Beaver County atlas maps,

1877 mapping of the Ohio River and immediate vicinity, and 1939 aerial photographs available on the World Wide Web. Additional atlas maps were available for study areas falling within Allegheny County. Eleven aerial photographs were available for SA 14.

### **Fieldwork**

On October 6-7, 2009, GAI, AES, Nashville District and Pittsburgh District personnel conducted a field view of the project areas. Eight of the SAs (5, 6, 7, 10, 11, 13, 16, and 18) were aquatic locations viewed by boat, while the only terrestrial SA (SA 14) was subjected to a pedestrian reconnaissance. Each SA was photographed.

GAI archaeologists conducted a pedestrian reconnaissance and limited subsurface testing of SA 14 (Montgomery Slough) on October 7, 2009. SA 14 background research indicated the presence of a large multi-component Woodland village site (36BV9), which was reportedly destroyed by late-twentieth century activities.

Subsurface archaeological investigations consisted of auger probes and judgmentally placed STPs excavated to identify cultural materials and establish whether intact soils were present within the project area. STPs measured 50 cm (1.5 ft) in diameter and were excavated by natural soil horizons, continuing at least 10 cm into culturally sterile subsoil. Excavated soils were screened through 6 mm (0.25-inch) hardware mesh for systematic artifact recovery. Close-interval (5-meter) STPs were excavated around positive STPs.

Excavation results were recorded on standardized field forms (including profiles of STPs, provenience data, depth of soil horizons, soil descriptions, and a list of any recovered artifacts). STPs were backfilled after excavations, and locations were

documented on SA design maps and recorded with a GPS unit capable of submeter accuracy.

### **Laboratory Analysis**

GAI transported artifacts from Site 36BV9 to its laboratory in Homestead, Pennsylvania, for cleaning, processing, and analysis. Once artifacts arrived, laboratory staff checked the field specimen (FS) log against labeled artifact bags for consistency and accuracy. Technicians then temporarily placed the artifact bags in numerical order according to FS number to facilitate tracking during the processing, analysis, and curation stages. Subsequently, cultural materials were cleaned and placed on artifact-drying racks. Lab staff then re-bagged the clean, dry artifacts into new, 4-mil polyethylene bags. Provenience information was transferred onto the clean bags using a permanent ink marker (Sharpie®). An acid-free paper tag with complete provenience information was placed inside each artifact bag. Prehistoric lithic artifacts were subjected to descriptive and technological analyses. Artifacts collected during the project, as well as project field documents, will be curated at the Pennsylvania State Museum, pending landowner donation.



## CHAPTER 5. RESULTS

Results of the background research and field investigations are presented below by Study Area. Eight of the SAs (5, 6, 7, 10, 11, 13, 16, and 18) involved fill placement below ordinary high water and required only a literature review to identify any known submerged vessels or archaeological sites that might be affected by potential fill placement. SA 14 may involve modifications to the floodplain or terraces and required limited field investigations in addition to background research. Table 2 provides a summary of archaeological resource potential for each study area. Each SA is discussed separately below.

**Table 2. Summary of Archaeological Resource Potential for Study Areas**

SA	Recorded Archaeological Site in APE	Recorded Structure in APE	Mapped Resource in APE	Potential Cultural Resources in Immediate Vicinity	Comments
5	Davis Island Lock and Dam	No	Davis Island Lock and Dam	Davis Island Lock and Dam remains	Davis Island Lock and Dam remains may be present on river bottom and riverbank
6	No	No	No		
7	No	No	Ca. 1828 lock and dam	Ca. 1828 lock and dam	Previous cultural resources report indicates a high potential for prehistoric archaeological sites along the shoreline at northwest end of SA7.
10	No	No	No		Unspecified prehistoric open habitation site (36BV277) in nearby floodplain
11	No	No	No		Unspecified prehistoric open habitation site (36BV80) in nearby floodplain
13	No	No	No		
14	36BV9	No	No		Early Woodland (EW), Middle Woodland (MW), and Late Woodland (LW) Village in floodplain of SA 14
16	36BV334 and 36BV60	No	No	36BV334 and 36BV60	36BV334 - Unspecified prehistoric open habitation site on island 36BV60 – Early Archaic open habitation site on island
18	No	No	No		



### **Study Area 5**

#### ***Project Description***

SA 5 is a proposed submerged foreshore dike located on the back channel of the Ohio River near Davis Island (see Figure 2) that would create enhanced aquatic habitats between the dike and shoreline. The proposed submerged dike is approximately 0.66 miles long (River Mile 4.5-5.2) and will tie in to the shoreline at its upstream terminus and run parallel to the shoreline for the remaining length of the structure. The project area encompasses approximately 2.41 acres and will have minimal shoreline impacts at a tie-in point for the dike. The tie-in point to the shore has not yet been established; therefore, the immediate shoreline paralleling the extent of the proposed foreshore dike was examined during background research.

#### ***Background Research***

Literature research was undertaken at BHP for information regarding previous cultural resource investigations and recorded cultural resources in the vicinity of SA 5. No cultural resources surveys have been conducted within or immediately adjacent to SA 5. PASS files data indicate that no previously recorded archaeological sites occur within the SA or its immediate vicinity. PHRS and NRHP files indicate that there is one previously-recorded former historic architectural resource (now archaeological remains) at SA 5. The NRHP-listed Davis Island Lock and Dam site, consisting of remaining portions of the first lock and dam on the Ohio River, is significant for its contributions to engineering, transportation, and industry. The Davis Island Lock and Dam was designed between 1874 and 1878, completed in 1885, and removed in 1922; its structural remains

were listed on the NRHP in 1980. Features observed after the removal of this structure complex were included on the NRHP nomination form.

Three USGS topographic maps (1906, 1948, and 1997), two maps of the Ohio River and immediate vicinity (Gay 1828; Hayes 1877), and five historical atlas maps (Hopkins 1876, 1886, 1890, 1905, 1917) were reviewed for SA 5. The area was undeveloped in 1828 (Figure 10). In 1876, there was no development along the river's edge and only two structures shown near, but not within, the study area (Figure 11). By 1877, only one of those two structures remained (Figure 12). The former location of part of the Davis Island Dam and south riverbank retaining wall are depicted in the 1906 USGS quadrangle map (Figure 13). From 1906 to the present, the only other structure mapped within the immediate vicinity of the project area is the railroad, which paralleled the shoreline and is extant today. Since the construction of the railroad, the area has experienced additional industrial growth, but none within the riverine project area or immediate riverbank (see Figure 2).

The area along the shoreline is mapped as Urban Lands (UB) (Newbury et al. 1981). This may be due to construction activities associated with the construction of Davis Island Lock and Dam and/or fill placed along the riverbank after the 1936 flood.

### ***Site View***

Study Area 5 was viewed by boat on October 7, 2009. There was no visible evidence of remains associated with Davis Island Lock and Dam on the riverbank, but vegetation obscured much of the view (Photograph 1).



REFERENCE:  
GAY, E. F., "A MAP AND PROFILE  
FOR A SLACK WATER  
NAVIGATION ALONG THE OHIO  
RIVER FROM PITTSBURGH TO  
BEAVER," 1828. PUBLISHED BY  
THE ARMY CORPS OF  
ENGINEERS, PITTSBURGH.

#### PROJECT LOCATION



ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

#### LEGEND

 STUDY AREA BOUNDARY

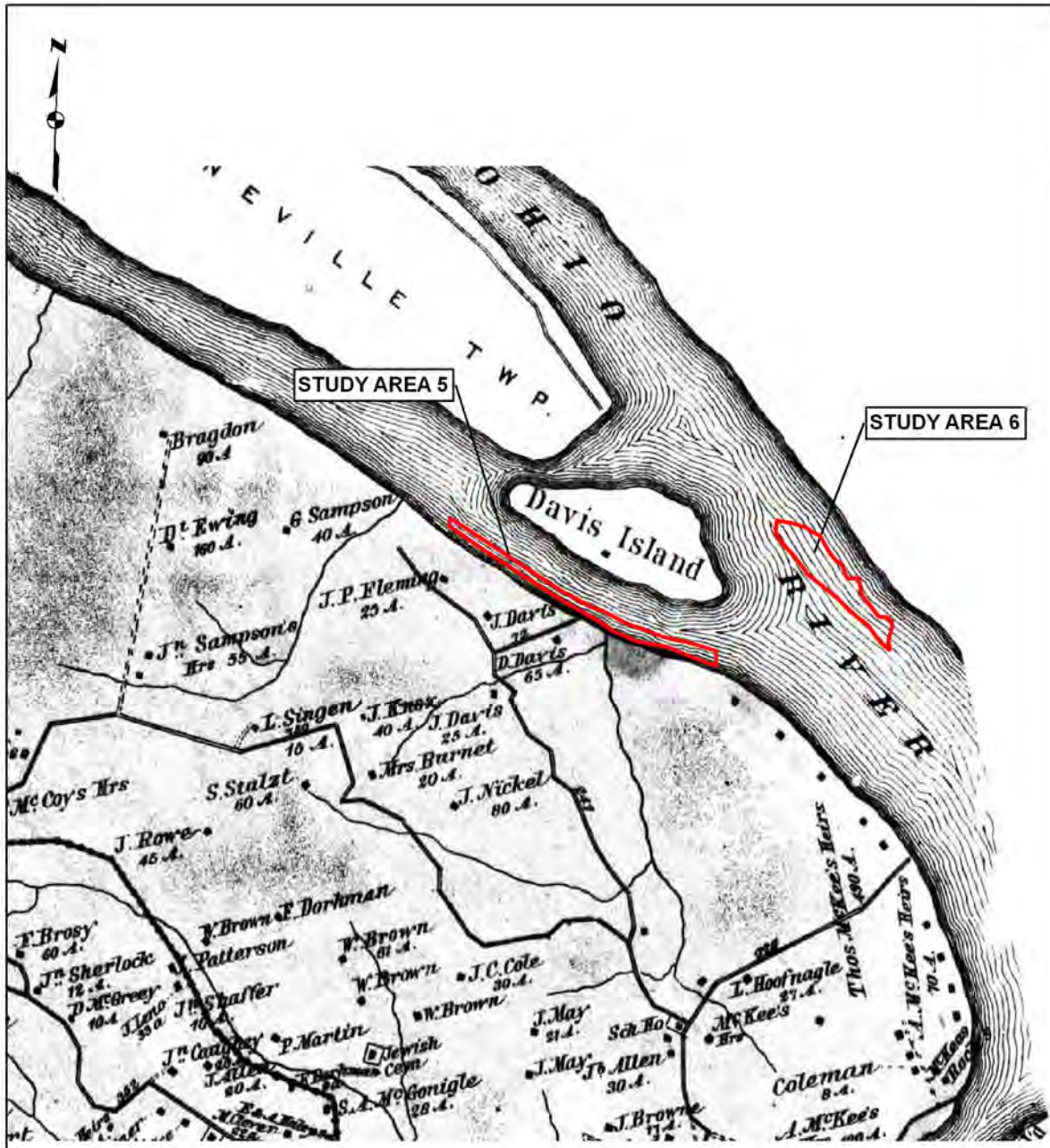
NOT TO SCALE

FIGURE 10  
DEVELOPMENT OF STUDY AREAS  
5 AND 6 IN 1828

UPPER OHIO NAVIGATION STUDY  
ECOSYSTEM RESTORATION,  
ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

DRAWN BY: AJW  
CHECKED: AKT

DATE: 12/21/2009  
APPROVED: LAF



REFERENCE:  
 "THE ATLAS OF THE COUNTY OF  
 ALLEGHENY PENNSYLVANIA",  
 1876. PUBLISHED BY G. M.  
 HOPKINS, C.E., PHILADELPHIA.

#### PROJECT LOCATION



ALLEGHENY AND BEAVER  
 COUNTIES, PENNSYLVANIA

#### LEGEND

STUDY AREA BOUNDARY

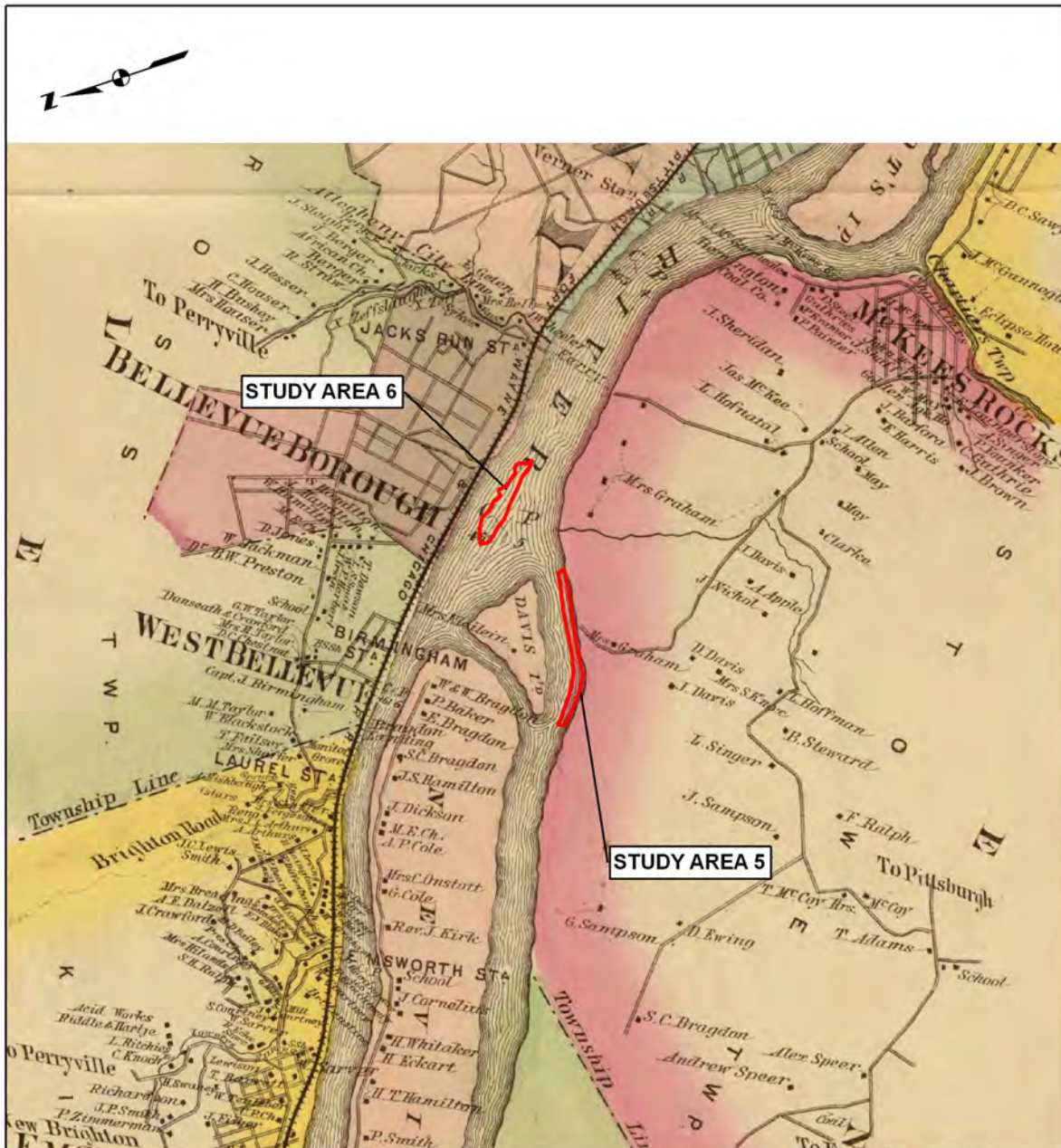
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FIGURE 11  
 DEVELOPMENT OF STUDY AREAS  
 5 AND 6 IN 1876

UPPER OHIO NAVIGATION STUDY  
 ECOSYSTEM RESTORATION,  
 ALLEGHENY AND BEAVER  
 COUNTIES, PENNSYLVANIA

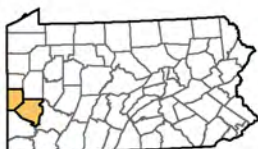
DRAWN BY: AJW  
 CHECKED: AKT  
 DATE: 12/08/2009  
 APPROVED: LAF





REFERENCE:  
 "ILLUSTRATED ATLAS OF THE  
 UPPER OHIO RIVER AND VALLEY  
 FROM PITTSBURGH, PA TO  
 CINCINNATI, OHIO," 1877. TITUS,  
 SIMMONS, & TITUS,  
 PHILADELPHIA, PENNSYLVANIA.

#### PROJECT LOCATION



ALLEGHENY AND BEAVER  
 COUNTIES, PENNSYLVANIA

#### LEGEND

 STUDY AREA BOUNDARY

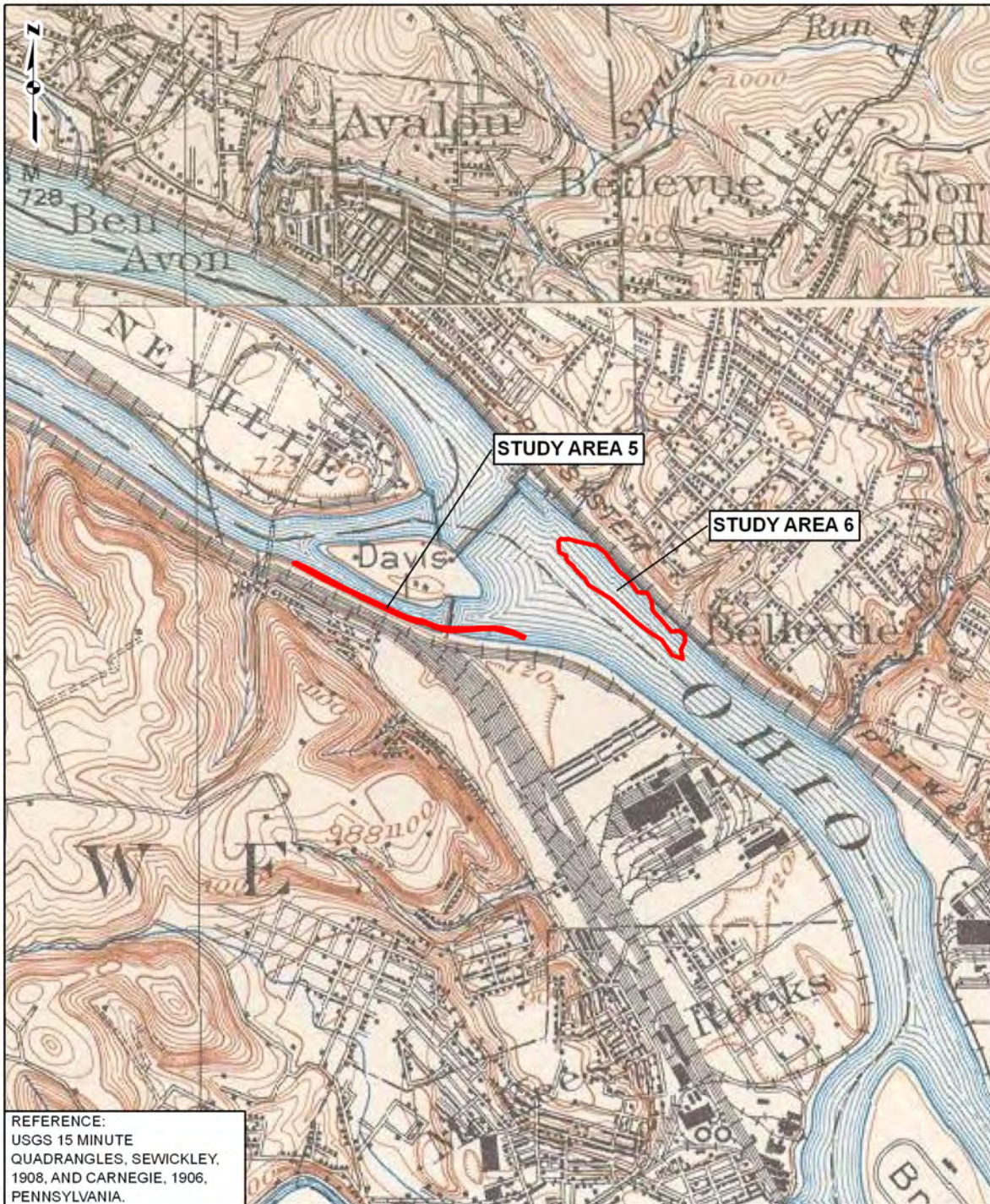
NOT TO SCALE

FIGURE 12  
 DEVELOPMENT OF STUDY AREAS  
 5 AND 6 IN 1877

UPPER OHIO NAVIGATION STUDY  
 ECOSYSTEM RESTORATION,  
 ALLEGHENY AND BEAVER  
 COUNTIES, PENNSYLVANIA

DRAWN BY: AJW DATE: 12/21/2009  
 CHECKED: AKT APPROVED: LAF





REFERENCE:  
USGS 15 MINUTE  
QUADRANGLES, SEWICKLEY,  
1908, AND CARNEGIE, 1906,  
PENNSYLVANIA.

#### PROJECT LOCATION




ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

#### LEGEND

STUDY AREA BOUNDARY

0 1,000 2,000 4,000  
Feet

FIGURE 13  
DEVELOPMENT OF STUDY AREAS  
5 AND 6 IN 1906

 UPPER OHIO NAVIGATION STUDY  
ECOSYSTEM RESTORATION,  
ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

DRAWN BY: AJW  
CHECKED: AKT

DATE: 12/08/2009  
APPROVED: LAF



***Photograph 1. Overview of SA 5.  
View Southeast.***



***Summary***

Remnants of this NRHP-listed former Davis Island Lock and Dam may be present in Study Area 5. Therefore, this area is considered to have high potential for intact archaeological resources associated with this lock and dam in both the river channel and the riverbank. A ground reconnaissance and a review of interpreted side-scan sonar images are recommended to identify the location of any intact remains associated with the NRHP-listed Davis Island Lock and Dam site that fall within the SA 5 APE. Subsurface testing is recommended at the tie-in location if intact soils are present.

**Study Area 6**

***Project Description***

Study Area 6 is located in the Ohio River near the northeast bank from River Mile 3.9 to River Mile 5.0 (see Figure 2). This area was selected for possible contouring and substrate improvements to enhance spawning habitats. The APE, which will parallel the shoreline, is entirely within the river and will have no shoreline impacts. The project area covers approximately 17.79 acres.

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### ***Background Research***

Literature research was undertaken at the BHP office for information regarding previous cultural resource investigations and recorded cultural resources in the vicinity of SA 6. No cultural resource surveys have been conducted within or immediately adjacent to SA 6. PASS and PHRS files indicate that no previously recorded archaeological sites or standing structures are located within the APE of SA 6. The NRHP files indicate that one NRHP-listed archaeological site (Davis Island Lock and Dam site) is near but not within the APE. As discussed above, the Davis Island Lock and Dam site consists of remnant construction features of the first lock and dam on the Ohio River, which was constructed in 1885.

Three USGS topographic maps (1906, 1948, and 1997), two maps of the Ohio River (Gay 1828; Hayes 1877), one 1939 aerial photograph, and five historical atlas maps (Hopkins 1876, 1886, 1890, 1905, 1917) were reviewed. SA 6, undeveloped in 1828 (see Figure 10), experienced industrial development by 1876, including railroad tracks and the nearby Bellvue Station (see Figure 11). By 1885, the Davis Island Lock and Dam was completed. This navigation structure was removed in 1922 and was situated outside of SA 6 (see Figure 13). From 1948 to present, the only mapped structure within the immediate vicinity of the project area is a lighthouse on the riverbank and a railroad line that parallels the shoreline (see Figure 2). These resources do not extend into SA 6.

The area along the shoreline is mapped as Urban Lands (Ub) (Newbury et al. 1981). This may be due to construction activities associated with Davis Island Lock and Dam, or fill placed along the riverbank for the railroad grade, or to raise or repair the riverbank after a flood.

### ***Site View***

Study Area 6 was viewed by boat on October 7, 2009. The entire APE is submerged.

### ***Summary***

There are no known recorded cultural resources or mapped historic-era resources associated with SA 6. No additional archaeological investigations are recommended except to review interpreted side-scan sonar images to confirm that there are no submerged resources (boats or barges) over 50 years of age within this study area.

### **Study Area 7**

#### ***Project Description***

SA 7, centered on River Mile 8.7-9.8, is located on the southwest bank of the Ohio River in the back channel created by Neville Island (see Figure 3). This area is the location of a proposed foreshore dike approximately 1.14 miles in length that will tie in to the shoreline at its upstream terminus and parallel the shore for the remaining length of the structure. Moon Run empties into the Ohio River at the east end of the study area. The project area encompasses approximately 9.78 acres and will only have minimal shoreline impacts at the tie-in point for the dike. The tie-in point to the shore has not yet been established; therefore, the immediate shoreline paralleling the extent of the proposed foreshore dike was examined during background research.

#### ***Background Research***

Literature research was undertaken at the BHP office in Harrisburg for information regarding previous cultural resource investigations and recorded cultural

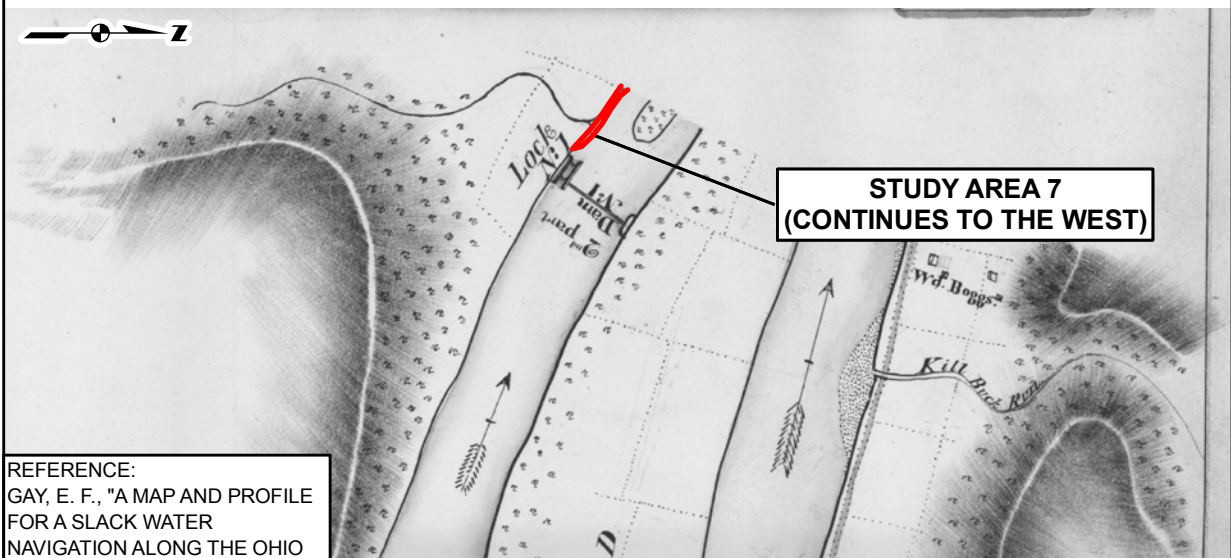
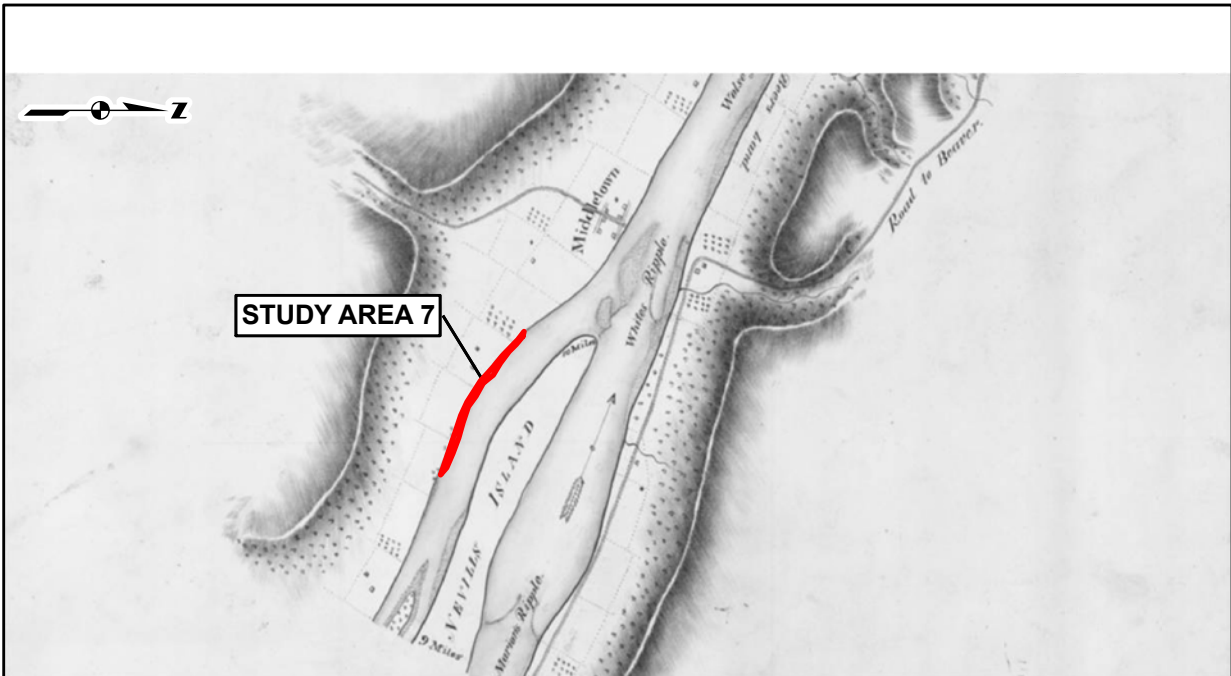
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resources in the vicinity of SA 7. PASS, PHRS, and NRHP files indicate that no previously recorded cultural resources occur within SA 7 or its immediate vicinity.

One previous cultural resources survey was conducted within the immediate vicinity of SA 7. This survey (ER No. 1990-0673-003), conducted by Cultural Heritage Research Services (CHRS) on behalf of the Federal Highways Administration consisted of a Phase IA literature review for the Coraopolis Bridge, located at the northwestern extent of SA 7. Background research for the project indicated a high potential for prehistoric-era archaeological materials within the project area. However, the presence of hazardous materials prevented subsurface testing by CHRS.

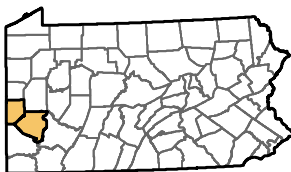
Three topographic maps (1906/8, 1948, 1990), two maps of the Ohio River and its immediate vicinity (Gay 1828; Hayes 1877), one 1939 aerial photograph, and five historical atlas maps (Hopkins 1876, 1886, 1890, 1905, 1917) were reviewed for SA 7. Two houses were depicted on the 1828 map but were located away from the shoreline; however, a lock and dam are shown just east of Moon Run near the eastern terminus of SA7 (Figure 14, top and bottom). The 1876 and 1877 maps indicate that the SA 7 vicinity was sparsely developed with no structures in the immediate vicinity of the shoreline and no riverine resources in this location (Figure 15). From 1906/8 to the present, a railroad line parallels the shoreline and about 10 houses and an industrial complex are set further back from the riverbank (Figure 16). None of these structures is mapped on the shoreline or immediately adjacent to SA 7.

Based on map research, SA 7 has a low potential to impact historic-era archaeological resources except on the eastern end where a dam was constructed in the early-nineteenth century.



REFERENCE:  
GAY, E. F., "A MAP AND PROFILE  
FOR A SLACK WATER  
NAVIGATION ALONG THE OHIO  
RIVER FROM PITTSBURGH TO  
BEAVER," 1828. PUBLISHED BY  
THE ARMY CORPS OF  
ENGINEERS, PITTSBURGH.

#### PROJECT LOCATION



ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

#### LEGEND



STUDY AREA BOUNDARY

NOT TO SCALE

FIGURE 14  
DEVELOPMENT OF STUDY AREA 7  
IN 1828

UPPER OHIO NAVIGATION STUDY  
ECOSYSTEM RESTORATION,  
ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

DRAWN BY: AJW  
CHECKED: AKT

DATE: 01/07/2010  
APPROVED: LAF





REFERENCE:  
"ILLUSTRATED ATLAS OF THE  
UPPER OHIO RIVER AND VALLEY  
FROM PITTSBURGH, PA TO  
CINCINNATI, OHIO," 1877. TITUS,  
SIMMONS, & TITUS,  
PHILADELPHIA, PENNSYLVANIA.

#### PROJECT LOCATION



ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

#### LEGEND



STUDY AREA BOUNDARY

NOT TO SCALE

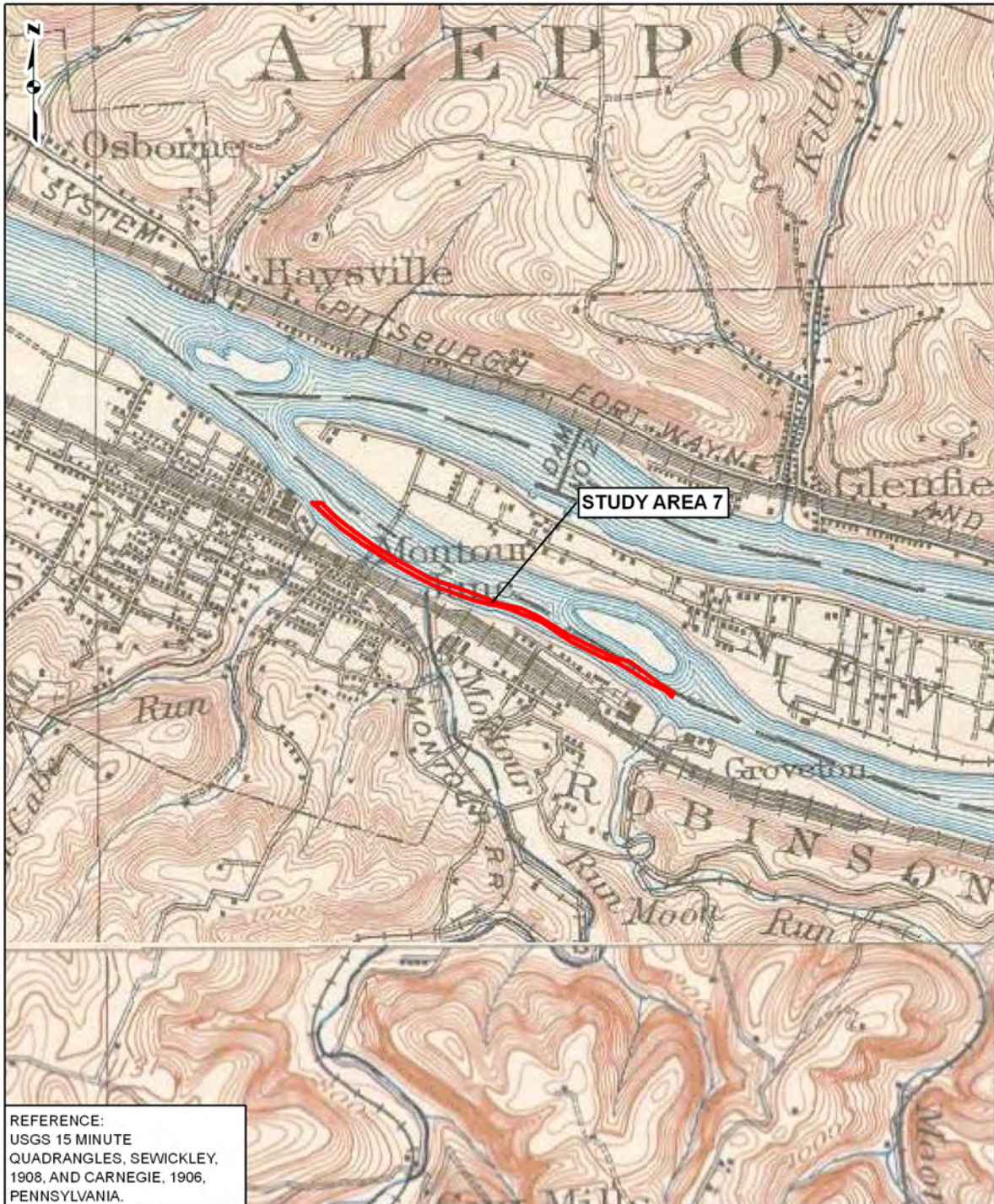
FIGURE 15  
DEVELOPMENT OF STUDY AREA 7  
IN 1877

UPPER OHIO NAVIGATION STUDY  
ECOSYSTEM RESTORATION,  
ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA



DRAWN BY: AJW  
CHECKED: AKT  
DATE: 12/21/2009  
APPROVED: LAF





REFERENCE:  
USGS 15 MINUTE  
QUADRANGLES, SEWICKLEY,  
1908, AND CARNEGIE, 1906,  
PENNSYLVANIA.

**PROJECT LOCATION**



ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

**LEGEND**



STUDY AREA BOUNDARY

0 1,000 2,000 4,000  
Feet

**FIGURE 16**  
**DEVELOPMENT OF STUDY AREA 7**  
**IN 1908**

UPPER OHIO NAVIGATION STUDY  
ECOSYSTEM RESTORATION,  
ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA



DRAWN BY: AJW  
CHECKED: AKT

DATE: 12/08/2009  
APPROVED: LAF

A review of the Allegheny County Soil Survey (Newbury et al. 1981) along the shoreline near SA7 indicates that the soils are mapped as Urban Lands (Ub). This may be due to industrial activities on the island or fill placed along the riverbank after the 1936 flood. Therefore, it is unlikely that the tie-in will impact intact cultural resources on the riverbank.

### ***Site View***

Study Area 7 was viewed by boat on October 7, 2009. There was no visible evidence of any archaeological remains along the shoreline but vegetation obscured much of the view (Photograph 2).



***Photograph 2. Overview of SA 7.  
View Southeast.***

### ***Summary***

There are no recorded archaeological resources and one possible mapped historic-era resource (a ca. 1828 lock and dam near the eastern terminus of SA7) associated with SA 7. A previous cultural resource study indicated that the shoreline in the west terminus of the project area had a high potential for prehistoric archaeological resources, but hazardous materials in the soil prevented subsurface testing. Limited subsurface testing at the tie-in point and a review of interpreted side-scan sonar images are recommended to confirm that there are no terrestrial or submerged archaeological resources present prior to any ground-disturbing activities.



### **Study Area 10**

#### ***Project Description***

SA 10 is located near the eastern bank of the Ohio River from River Mile 17.6-17.9 (see Figure 4). This area is the location of a proposed foreshore dike approximately 0.46 miles in length, which will tie in to the shoreline at its upstream terminus and parallel the shore for the remaining length of the structure. The project area covers nearly 3.0 acres and will have minimal shoreline impacts at a tie-in point for the dike. The tie-in point to the shore has not yet been established; therefore, the immediate shoreline paralleling the extent of the proposed foreshore dike was examined during background research.

#### ***Background Research***

Literature research was undertaken at the BHP office for information regarding previous cultural resource investigations and recorded cultural resources in the vicinity of SA 10. PHRS and NRHP files indicate that there are no previously recorded architectural or historical resources located within SA 10 or close enough to the shoreline to be impacted by planned site activities. PASS files data indicate that no previously recorded archaeological sites occur within the SA; however, there is one previously recorded archaeological site (36BV277) within the immediate vicinity of SA 10 but set back from the riverbank (see Table 2). Identified by a collector, Site 36BV277 is an unassigned prehistoric-era site occupying the Ohio River floodplain immediately north of SA 10. It is difficult to ascertain the extent of the site and its current condition due to local development in the area.

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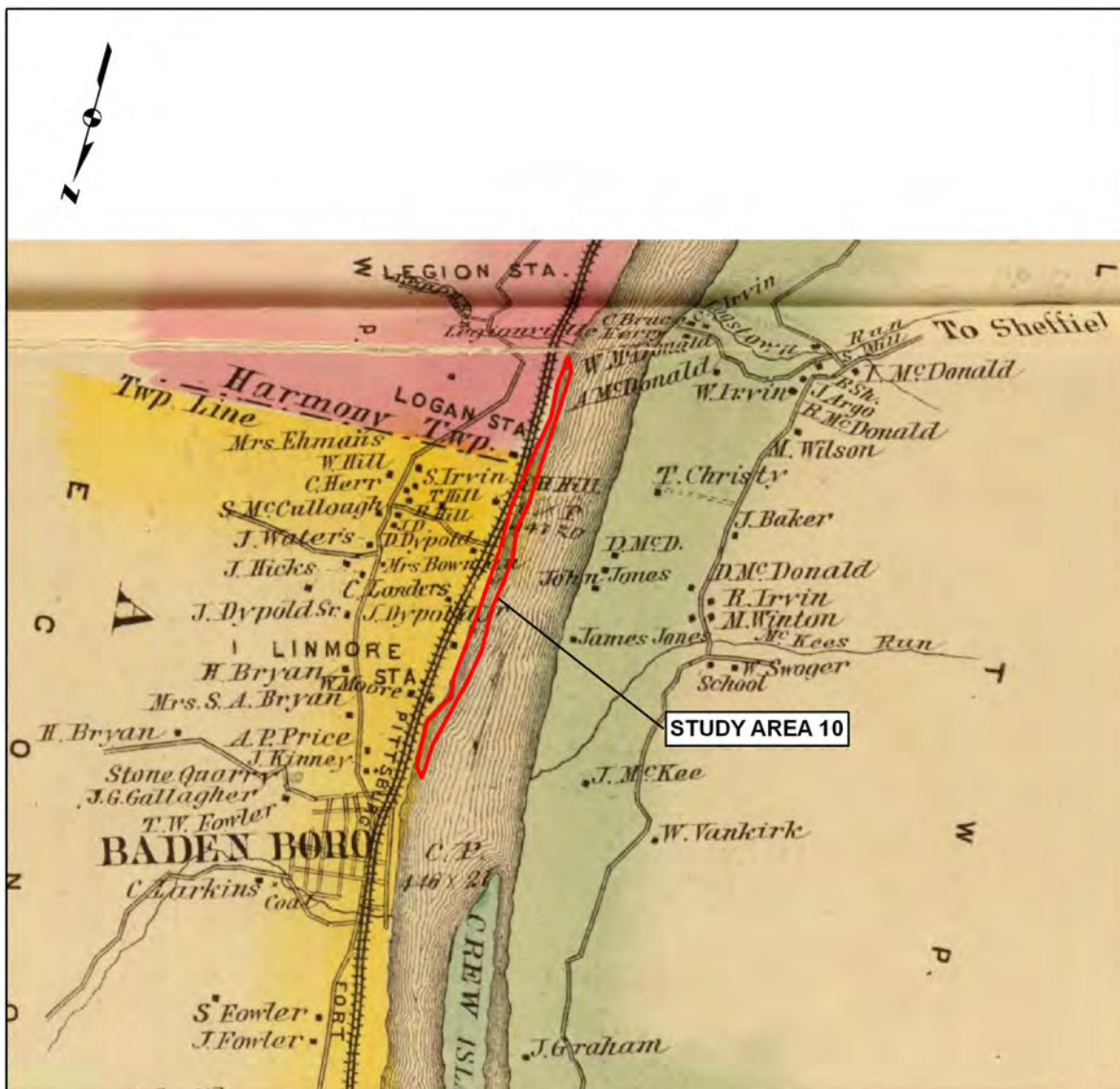
Three previous cultural resources surveys (ER Nos. 1985-0066-007, 1989-0300-007, and 2000-0181-007) conducted near SA 10 were associated with Old Economy Village in Ambridge. Heberling Associates, Inc (HAI) conducted two previous surveys: excavations of the Granary Building (ER No.1985-0066-007) and a Phase I survey for installation of new drainage lines adjacent to the Robertson House (ER No. 2000-0181-007). The remaining survey (ER No. 1989-0300-007), conducted by Marianna Thomas Architects, Clio Group, Inc., and a team of unnamed consultants, consisted of a survey of historic structures and archaeological investigation of the garden area.

Three USGS topographic maps (1904/8, 1953, and 1990), two maps of the Ohio River (Gay 1828; Hayes 1877), a 1939 aerial photograph, and one historical atlas map (Caldwell 1876) were reviewed. In 1828, there was no development along the Ohio River between Economy and Baden. By 1876, the Pennsylvania and Cleveland railroad line ran parallel to the river in this general vicinity (Figure 17). The 1877 map depicts two houses between the railroad line and riverbank on the north end of SA 10 (Figure 18). By 1904/8, the expanded rail lines occupied the area up to the riverbank (Figure 19). The railroad lines still occupy this area (see Figure 4). Based on map research, SA 10 has a low potential to impact historic-era archaeological resources.

Soil survey maps indicate the shoreline along SA10 is comprised of Dump (Du) deposits. There is no potential for an intact archaeological site within the industrial waste deposits. A field visit should be conducted to confirm that there are no intact soils at the tie-in location. If intact soils are present, subsurface testing may be necessary.

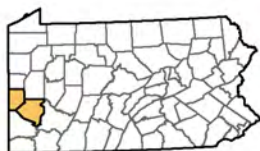






REFERENCE:  
 "ILLUSTRATED ATLAS OF THE  
 UPPER OHIO RIVER AND VALLEY  
 FROM PITTSBURGH, PA TO  
 CINCINNATI, OHIO," 1877. TITUS,  
 SIMMONS, & TITUS,  
 PHILADELPHIA, PENNSYLVANIA.

#### PROJECT LOCATION



ALLEGHENY AND BEAVER  
 COUNTIES, PENNSYLVANIA

#### LEGEND



STUDY AREA BOUNDARY

NOT TO SCALE

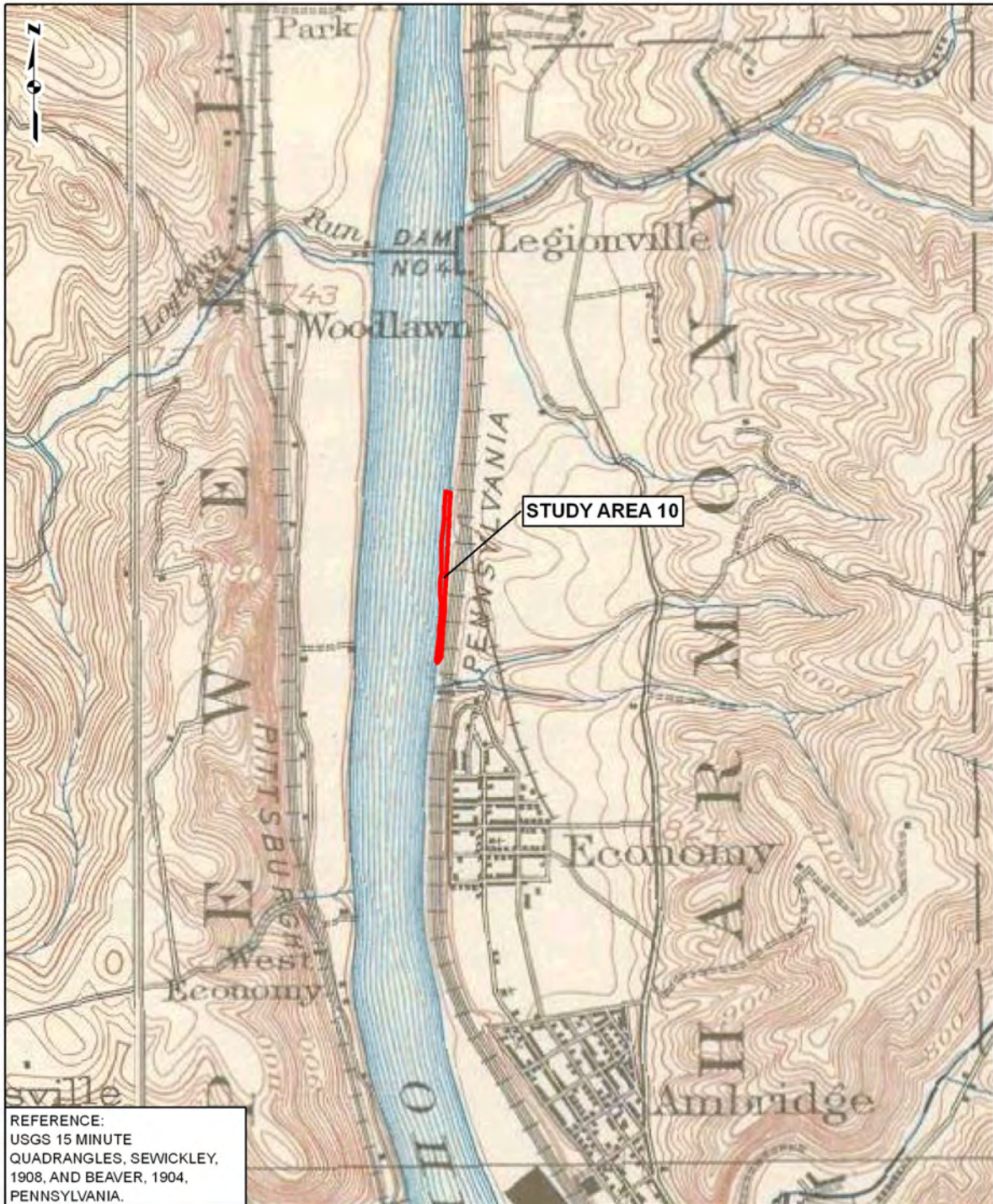
FIGURE 18  
 DEVELOPMENT OF STUDY AREA 10  
 IN 1877

UPPER OHIO NAVIGATION STUDY  
 ECOSYSTEM RESTORATION,  
 ALLEGHENY AND BEAVER  
 COUNTIES, PENNSYLVANIA

DRAWN BY: AJW  
 CHECKED: AKT

DATE: 12/21/2009  
 APPROVED: LAF





REFERENCE:  
USGS 15 MINUTE  
QUADRANGLES, SEWICKLEY,  
1908, AND BEAVER, 1904,  
PENNSYLVANIA.

#### PROJECT LOCATION




ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

#### LEGEND

STUDY AREA BOUNDARY

0 1,000 2,000 4,000  
Feet

**FIGURE 19**  
**DEVELOPMENT OF STUDY AREA 10**  
**IN 1908**

 UPPER OHIO NAVIGATION STUDY  
ECOSYSTEM RESTORATION,  
ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

DRAWN BY: AJW  
CHECKED: AKT

DATE: 12/08/2009  
APPROVED: LAF

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### *Site View*

Study Area 10 was viewed by boat on October 7, 2009. There was no visible evidence of any archaeological remains or industrial dumps along the shoreline but vegetation obscured much of the view (Photograph 3).



***Photograph 3. Overview of SA 10.  
View Southeast.***

### *Summary*

There are no known recorded archaeological or architectural resources or mapped historic-era resources along the riverbank in the APE for SA 10. Two ca.-1877 houses once located between the river and the single railroad line were impacted by construction of additional railroad lines in the area. Site 36BV277, a prehistoric archaeological site, is near the shoreline along much of the study area. Limited ground reconnaissance (and possible subsurface testing of intact soils) at the tie-in point and a review of interpreted side-scan sonar images are recommended to confirm that there are no terrestrial or submerged archaeological resources present prior to any ground-disturbing activities.

### **Study Area 11**

#### ***Project Description***

SA 11 is located on a gravel bar entirely within the river at the confluence of the Beaver and Ohio rivers at River Mile 25.5 (see Figure 5). This study area, measuring approximately 19.62 acres, was selected for proposed gravel bar enhancements. Any contouring and substrate enhancements will be within the river and will not impact any terrestrial resources.

#### ***Background Research***

Literature research was undertaken at BHP for information regarding previous cultural resource investigations and recorded cultural resources in the vicinity of SA 11. PHRS and NRHP files indicate that there are no previously recorded architectural or NRHP-eligible resources located within SA 11. PASS files data indicate that no previously recorded archaeological sites within the APE of SA 11. One previously recorded archaeological site (36BV80) is on the nearby terrace overlooking the mouth of the Beaver River (see Table 2). Site 36BV80 (Rochester Site), a Late Woodland period village site, was excavated by members of the Beaver Valley and Erie chapters of the Society for Pennsylvania Archaeology (SPA). The excavations produced burials, shell-tempered ceramics, triangular projectile points, and European trade goods, which suggest that this Protohistoric village site dates to ca. 1700 (Davis 1992). The site will not be impacted by planned activities at SA 11.

Christine Davis Consultants, Inc. (CDC) conducted two cultural resources surveys in the vicinity of SA 11. In 1991, CDC conducted a Phase IA archaeological survey to assess archaeological site potential on a 27-acre linear tract of land at the confluence of



the Beaver and Ohio Rivers for the Community Development Program of Beaver County (ER No. 1991-3653-007) (Davis 1992). In 2003, CDC completed a Phase IA archaeological survey to assess archaeological site potential on a parcel immediately west of the confluence of the Beaver and Ohio rivers for the Beaver County Corporation for Economic Development (ER No. 2004-0259-007) (Davis 2003). No subsurface testing was conducted for these two studies.

Three topographic maps (1904, 1953, and 1979), two maps of the Ohio River and its immediate vicinity (Gay 1828, Hayes 1877), a 1939 aerial photograph, and one historical atlas map (Caldwell 1876) of SA 11 were reviewed. Since this study area is entirely within the river, map research focused on riverine cultural resource activities. There was no development in this area in 1828 (Figure 20). By 1876 and 1877, the high terrace overlooking SA 11 was the location of a town (Rochester), but there were no construction features within SA 11 (Figures 21 and 22). By 1904, a railroad and highway bridge had been built across the Ohio River, but not within the project area (Figure 23). Subsequent maps do not show any construction activities in this riverine location.

The soil survey information indicates that the shoreline in this vicinity falls within Urban Land-Arents complex soils (Smith 1982). This soil complex indicates that there may be fill deposits along the riverbank near SA 11.

#### Site View

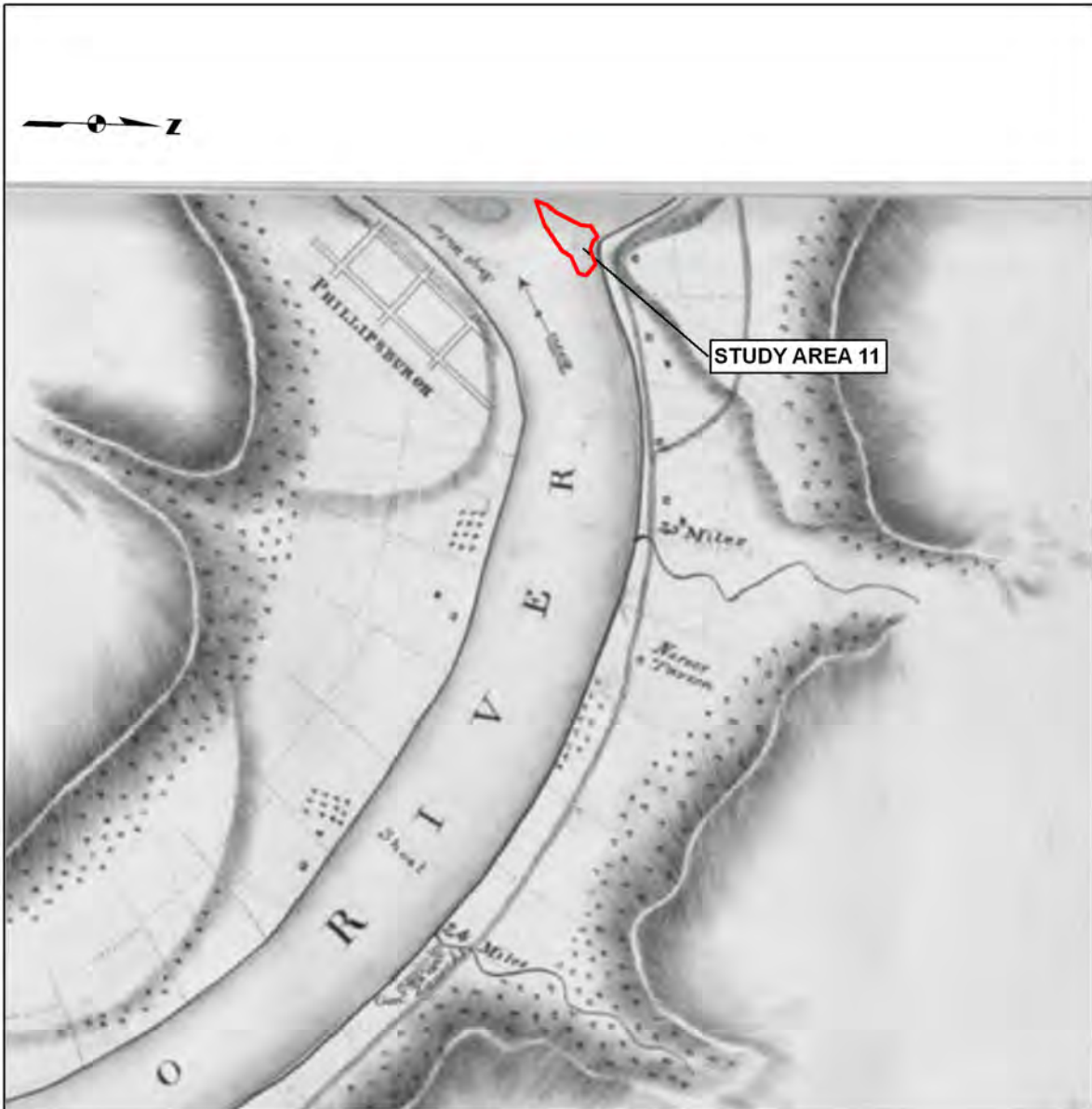
SA 11 was viewed by boat on October 6, 2009. The entire APE is submerged (Photograph 4).

***Photograph 4. Overview of SA  
11 (in Ohio River). View  
Northeast.***



### ***Summary***

The APE for Study Area 11 is located entirely within the Ohio River. There are no known recorded archaeological or architectural resources, or mapped historic-era resources, associated with SA 11. No additional archaeological investigations are recommended except to review interpreted side-scan sonar images to confirm that there are no submerged resources over 50 years of age within this riverine APE.



REFERENCE:  
GAY, E. F., "A MAP AND PROFILE  
FOR A SLACK WATER  
NAVIGATION ALONG THE OHIO  
RIVER FROM PITTSBURGH TO  
BEAVER," 1828. PUBLISHED BY  
THE ARMY CORPS OF  
ENGINEERS, PITTSBURGH.

#### PROJECT LOCATION



ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

#### LEGEND



STUDY AREA BOUNDARY

NOT TO SCALE

FIGURE 20  
DEVELOPMENT OF STUDY AREA 11  
IN 1828

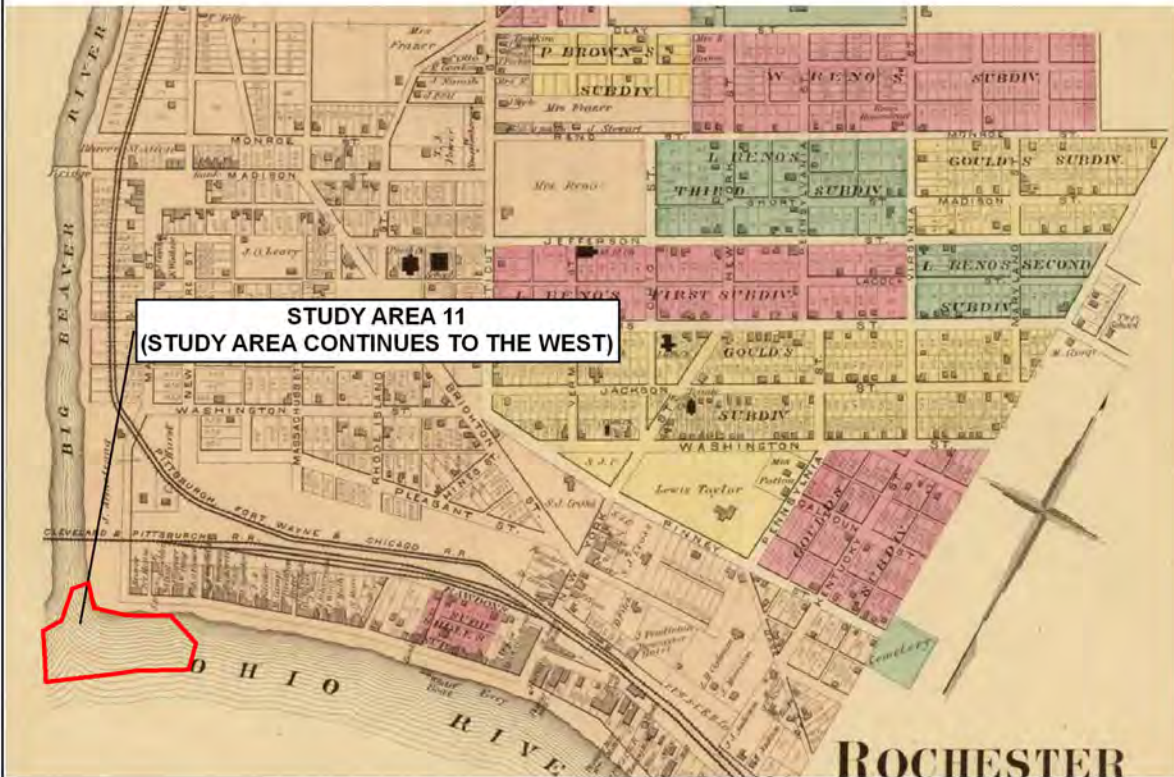
UPPER OHIO NAVIGATION STUDY  
ECOSYSTEM RESTORATION,  
ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

DRAWN BY: AJW  
CHECKED: AKT

DATE: 12/21/2009  
APPROVED: LAF



<p align="center"><b>FIGURE 21</b>  <b>DEVELOPMENT OF STUDY AREA 11</b>  <b>IN 1876</b></p>	
<p align="center">UPPER OHIO NAVIGATION STUDY          ECOSYSTEM RESTORATION,          ALLEGHENY AND BEAVER          COUNTIES, PENNSYLVANIA</p>	
<p><b>DRAWN BY: AJW</b>  <b>CHECKED: AKT</b></p>	<p><b>DATE: 12/08/2009</b>  <b>APPROVED: LAF</b></p>



REFERENCE:  
"ILLUSTRATED ATLAS OF THE  
UPPER OHIO RIVER AND VALLEY  
FROM PITTSBURGH, PA TO  
CINCINNATI, OHIO," 1877. TITUS,  
SIMMONS, & TITUS,  
PHILADELPHIA, PENNSYLVANIA.

#### PROJECT LOCATION



ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

#### LEGEND



STUDY AREA BOUNDARY

NOT TO SCALE

FIGURE 22  
DEVELOPMENT OF STUDY AREA 11  
IN 1877

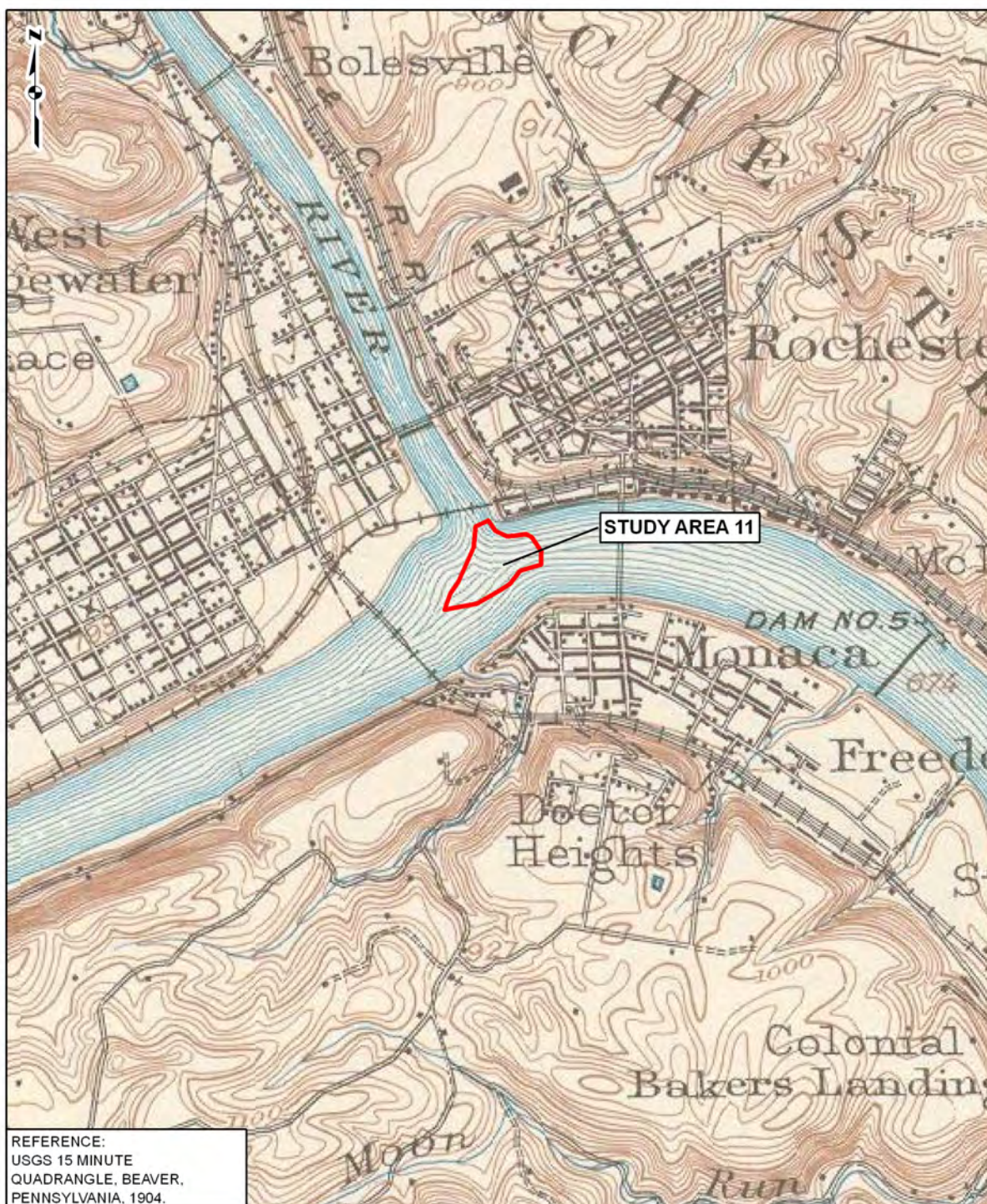
UPPER OHIO NAVIGATION STUDY  
ECOSYSTEM RESTORATION,  
ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA



DRAWN BY: AJW  
CHECKED: AKT

DATE: 12/21/2009  
APPROVED: LAF





REFERENCE:  
USGS 15 MINUTE  
QUADRANGLE, BEAVER,  
PENNSYLVANIA, 1904.

#### PROJECT LOCATION



ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

#### LEGEND

 STUDY AREA BOUNDARY

0 1,000 2,000 4,000  
Feet

FIGURE 23  
DEVELOPMENT OF STUDY AREA 11 IN  
1904

UPPER OHIO NAVIGATION STUDY  
ECOSYSTEM RESTORATION,  
ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

DRAWN BY: AJW  
CHECKED: AKT

DATE: 12/08/2009  
APPROVED: LAF

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## Study Area 13

### *Project Description*

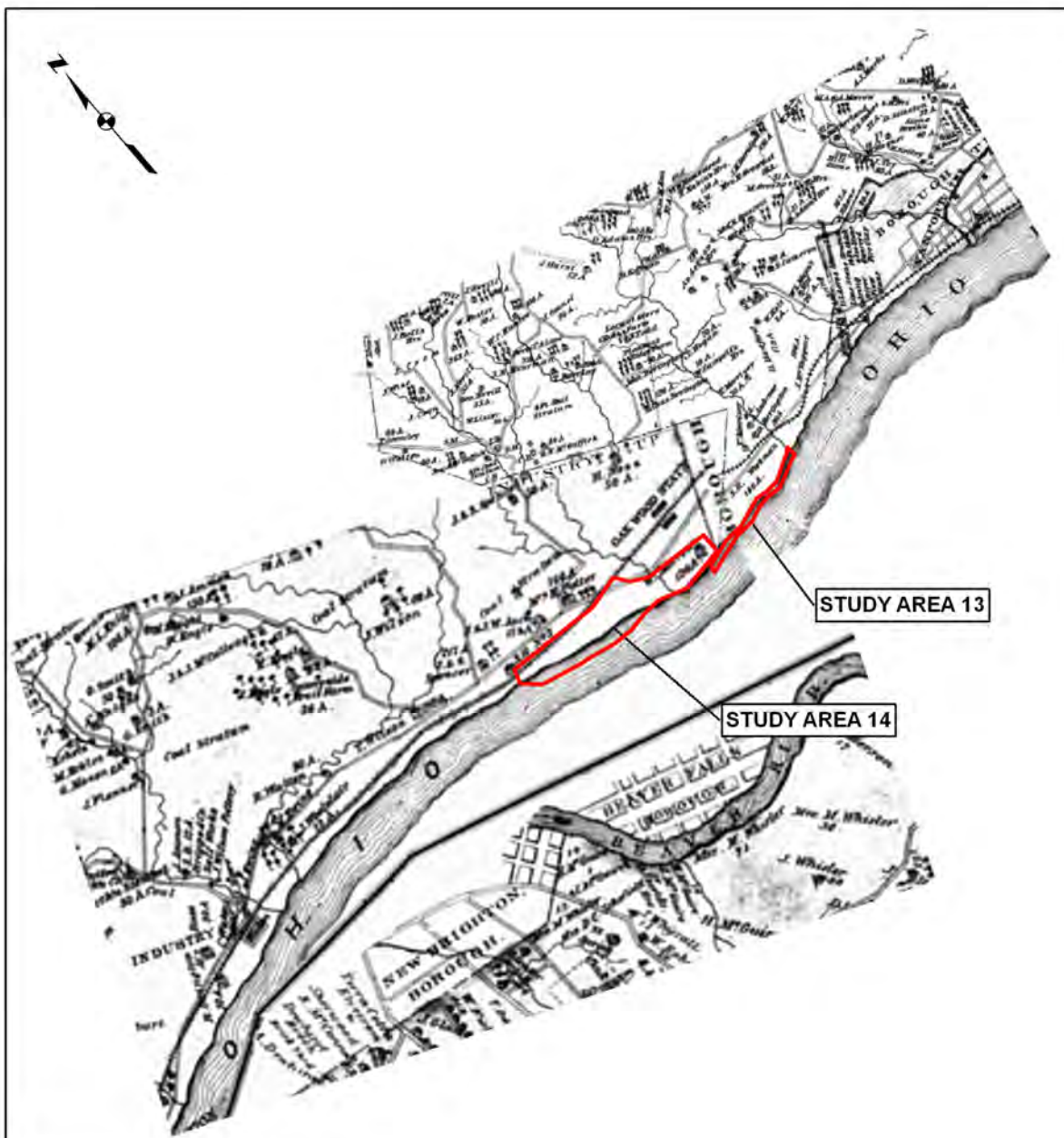
SA 13 is located near the north bank of the Ohio River, near the town of Ohioview (see Figure 6). This area is the location of a proposed foreshore dike approximately 0.75 miles in length, which will tie in to the shoreline at its upstream terminus and parallel the shore for the remaining length of the structure. The project area measures approximately 8.37 acres and will only have minimal shoreline impacts at a tie-in point for the dike. The tie-in point to the shore has not yet been established; therefore, the immediate shoreline paralleling the extent of the proposed foreshore dike was examined during background research. The soil survey indicates the soils on the riverbank are Philo silt loam (Smith 1982).

### *Background Research*

Literature research was undertaken at the BHP office for information regarding previous cultural resource investigations and recorded cultural resources in the vicinity of SA 13. PASS files data demonstrate that no previously recorded archaeological sites occur within SA 13 or its immediate vicinity. PHRS and NRHP files indicate that there are no previously recorded architectural or historical resources located within or adjacent to SA 13.

Three topographic maps (1904, 1953, 1979), two maps of the Ohio River and vicinity (Gay 1828, Hayes 1877), one 1939 aerial photograph, and one historical atlas map (Caldwell 1876) were reviewed. In 1876 and 1877, the SA 13 vicinity was completely undeveloped (Figure 24 and 25). By 1904, the only development was a single structure located near Fourmile Run, set back considerably from the shore (Figure 26).





REFERENCE:  
"CALDWELL'S ILLUSTRATED  
HISTORICAL CENTENNIAL  
ATLAS, BEAVER COUNTY  
PENNSYLVANIA", 1876.  
PUBLISHED BY J. A. CALDWELL,  
CONDIT OHIO.

#### PROJECT LOCATION




ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

#### LEGEND

 STUDY AREA BOUNDARY

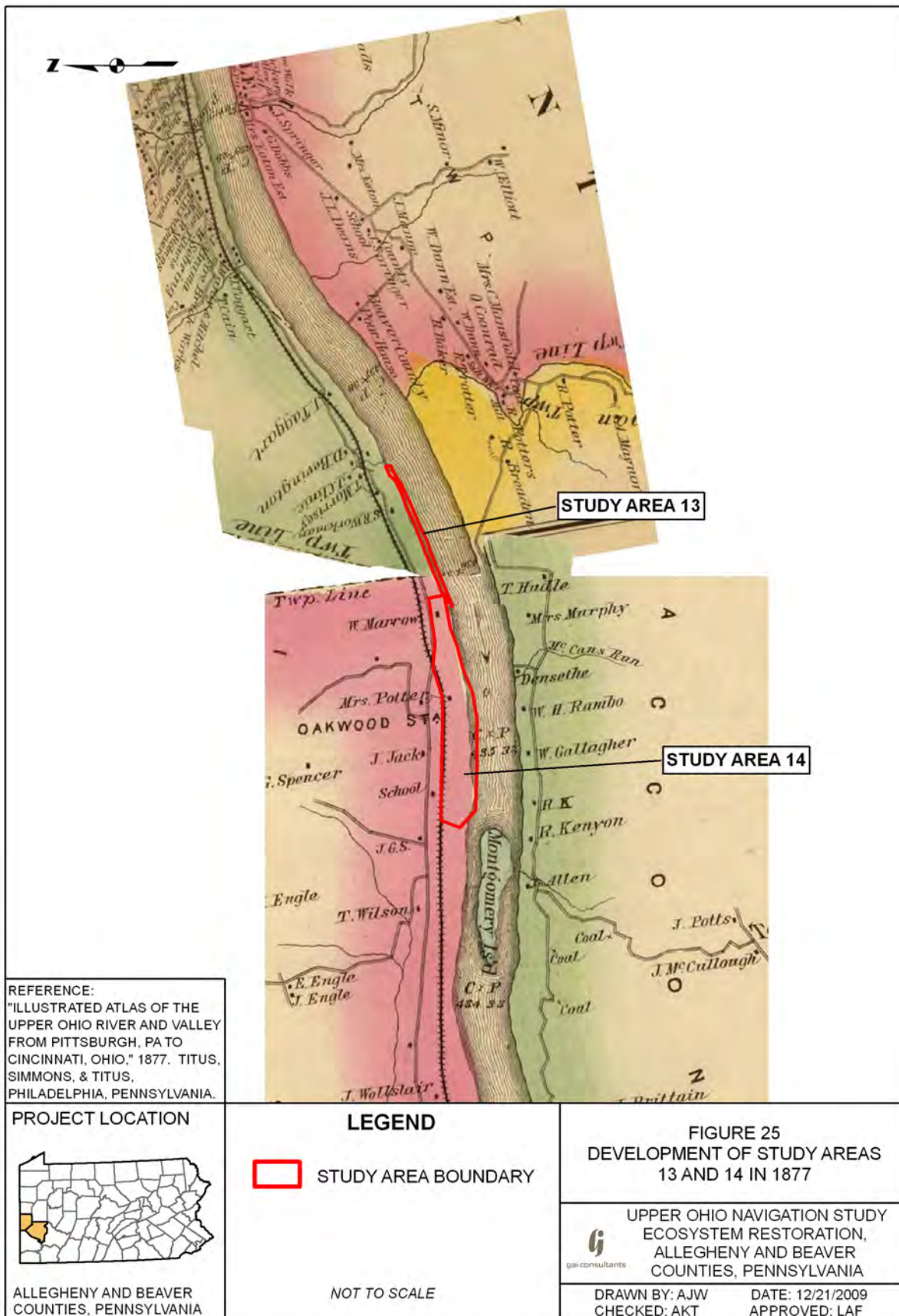
NOT TO SCALE

FIGURE 24  
DEVELOPMENT OF STUDY AREAS  
13 AND 14 IN 1876

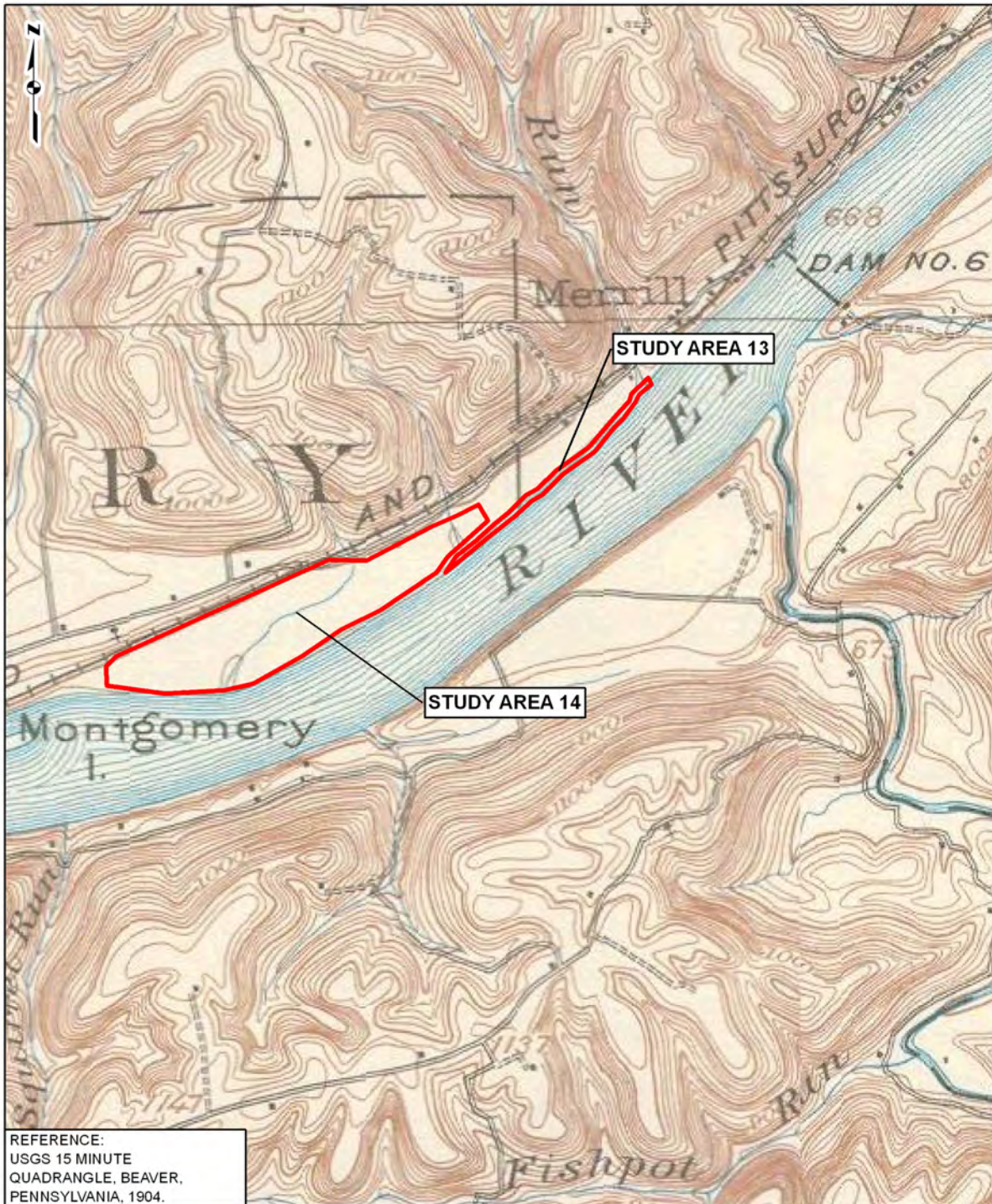
 UPPER OHIO NAVIGATION STUDY  
ECOSYSTEM RESTORATION,  
ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

DRAWN BY: AJW  
CHECKED: AKT

DATE: 12/08/2009  
APPROVED: LAF







REFERENCE:  
USGS 15 MINUTE  
QUADRANGLE, BEAVER,  
PENNSYLVANIA, 1904.

#### PROJECT LOCATION



ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

#### LEGEND

STUDY AREA BOUNDARY

0 1,000 2,000 4,000  
Feet

FIGURE 26  
DEVELOPMENT OF STUDY AREAS 13  
AND 14 IN 1904

UPPER OHIO NAVIGATION STUDY  
ECOSYSTEM RESTORATION,  
ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

DRAWN BY: AJW  
CHECKED: AKT

DATE: 12/08/2009  
APPROVED: LAF



By 1953, three structures were constructed on the shore side of the railroad tracks but outside of the APE for SA 13.

### ***Site View***

SA 13 was viewed by boat on October 6, 2009. There was no visible evidence of any archaeological remains along the shoreline. Vegetation and floating logs along the

shoreline obscured much of the view (Photograph 5). Part of the shoreline was also eroded (Photograph 6).



***Photograph 5. Overview of Shoreline along SA 13. View Northeast.***

***Photograph 6. Eroded Shoreline along SA 13. View North.***



### ***Summary***

There are no known recorded archaeological or architectural resources or mapped historic-era resources within the APE of SA 13. Limited subsurface testing at the tie-in point and a review of interpreted side-scan sonar images are recommended to confirm

that there are no terrestrial or submerged archaeological resources present prior to any ground-disturbing activities.

### **Study Area 14**

#### ***Project Description***

SA 14, located on the northern bank of the Ohio River at River Mile 31.0-31.9, was accessed by a dirt road off State Route 68 (Midland Beaver Road). This study area (referred to as Montgomery Slough) is the only study area that includes a substantial terrestrial component. The landform currently consists of a marshy floodplain with an inlet on the west end. Montgomery Dam raised the water level of the river behind the dam (Montgomery Pool) and submerged part of a stream and stream valley, creating the inlet and a swampy peninsula of land along the Ohio River (see Figure 6). Ecosystem improvements proposed for SA 14 include wetland improvements, removal of invasive species, and planting of native species, and may include placement of dredged materials in this location.

#### ***Current Conditions***

Much of SA 14 was used to dispose of dredged fill from the river. In the mid-1970s, the land was prepared for fill deposition by scraping off the upper soil and using this material to construct a levee system to contain the sludge-like fill (Amockwi Chapter #17, Society for Pennsylvania Archaeology [SPA] 1980:80). Dredge material was placed within the SA 14 APE from 1975 until 2004 (USACE nd). Over time, the dredge disposal areas were ringed by large stone or concrete walls and reached heights of 15 to 25 feet above the original land surface (Amockwi Chapter #17, SPA 1980:80; USACE nd). Haul roads were cut through the area to facilitate the dredge disposal operation. In

addition, concrete debris from the realignment of a road just north of the APE was buried on the northern part of SA 14 (USACE nd) (Photograph 7). As a result of past activities, the east and south sides of the APE are irregular and hummocky, part of the northern end is disturbed, and wetlands are situated at its western extent and north of the inlet (USACE nd).

***Photograph 7. Overview of North Side of SA 14. View East. (Photograph Courtesy of Aerostar Environmental Services, Inc.)***

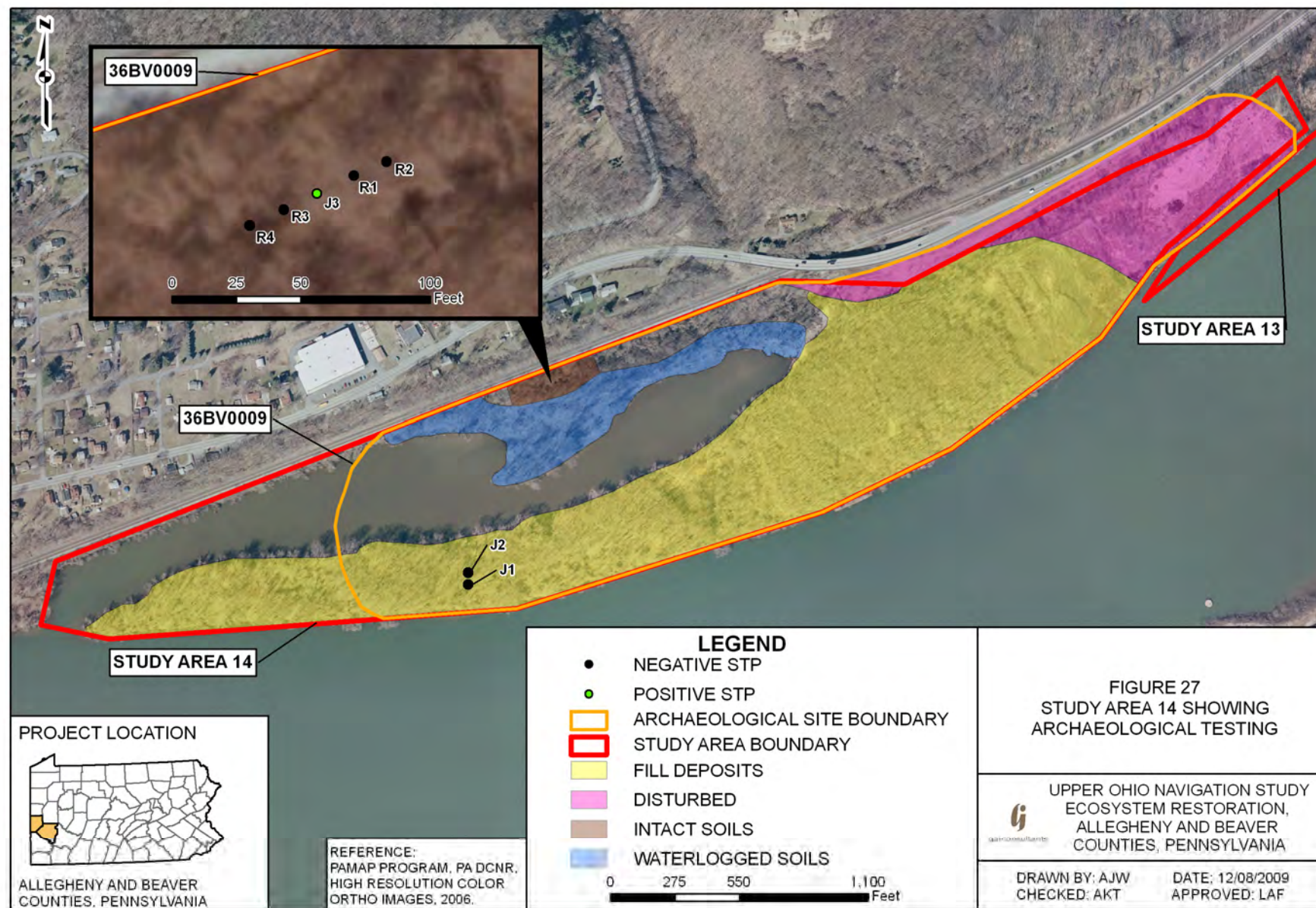


### ***Background Research***

Literature research was undertaken at the BHP office in Harrisburg for information regarding previous cultural resource investigations and recorded cultural resources in the vicinity of SA 14. No modern cultural resource surveys were undertaken within SA 14. Review of PHRS and NRHP files indicates that there are no previously recorded architectural or historical resources located within or adjacent to SA 14.

PASS file research indicates that a previously recorded large, multicomponent prehistoric village site (36BV9) covers most of the APE for SA 14 (Figure 27). Previous studies by local avocational archaeologists at the site generated chipped stone, groundstone, and ceramic artifacts and documented hearth and burial features from the Early through Late Woodland period (Mayer Oakes 1955; Faingert and Doyle 1977; Amockwi Chapter #17, SPA 1980:80).





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According to an account by avocational archaeologists from Amockwi Chapter #17, SPA, the upper four feet of part of the site was stripped off and used to build levees for dredged sludge deposits. These archaeologists reported that there were intact remains below the surface of the stripped areas (Amockwi Chapter #17, SPA 1980:80). Based on this information, there is a high potential for intact portions of the site outside of the fill deposits and disturbed areas.

The map review for SA 14 included four USGS topographic maps (1904, 1953, 1969, 1979), eleven aerial photographs (1939, 1952, 1967, 1975, 1977, 1982, 1988, 1993, 1995, and 2006), one map of the Ohio River and vicinity (Hayes 1877), and one historical atlas map (Caldwell 1876). During 1876 and 1877, this vicinity was sparsely developed. The Pittsburgh and Cleveland railroad line was built along the northern boundary of the study area. Two houses (W. Marrow and Mrs. Potter residences) are depicted within the APE (see Figures 24 and 25). By 1904, these dwellings were no longer present (see Figure 26). Based on map research, there is a potential to find archaeological remains of these two late-nineteenth-century occupations along the northern limits of the APE.

Aerial photographs reveal changes in development and vegetation within the APE during the twentieth century. In 1939, the western peninsula area and northern edge was sparsely wooded, while the east end was open grassland. Sometime between 1952 and 1960, the grasslands on the peninsula area reverted to scrub growth, but the east end of the project area remained mostly open fields (Photograph 8). By 1953, there was an access road leading to the peninsula area. The 1975 aerial photograph shows a large square area in the eastern part of the peninsula, which is likely the location of the levee



constructed to hold the dredged fill. The eastern half of the APE was also used for dredge material disposal.



***Photograph 8. Overview of Field in Center of Disturbed Eastern Portion of SA 14. View East.***

Soils in Study Area 14 are mapped as Conotton, Pope, and Philo silt loams. Pope silt loams are well drained level to relatively level soils comprised of recent alluvium found on floodplains, while Philo silt loams are moderately well drained level to relatively level soils comprised of alluvium derived from sedimentary rock found on floodplains. Although both soils are generally well drained, Pope silt loams are significantly deeper and sandier than Philo silt loams and therefore slightly less apt to maintain standing water. Conotton soils, located on a terrace on the northern limits of SA14, are well drained to excessively drained soils that formed in glacial outwash materials on kames and terraces.

### ***Field Investigations***

Field investigations included a ground reconnaissance and limited use of a soil probe to examine soils, followed by selective shovel test pit excavations (Photographs 9 and 10). The pedestrian reconnaissance and soil probe activities evaluated the potential for intact soils (and archaeological remains) in SA 14. The field investigations divided

the project area into four general areas: fill deposits, disturbed, intact soils, and waterlogged or marshy soils (see Figure 27).



***Photograph 9. Soil Probe Inserted to Handle in Fill.***

***Photograph 10. Soil Probe with Fill Soils.***



Aerial photographs indicated that the peninsula remained forested from at least as early as 1939. Pedestrian reconnaissance revealed that most of this forest had relatively young trees (Photograph 11). An area within the boundary of Site 36BV9 on the peninsula was selected for confirmation that fill deposits covered this area.

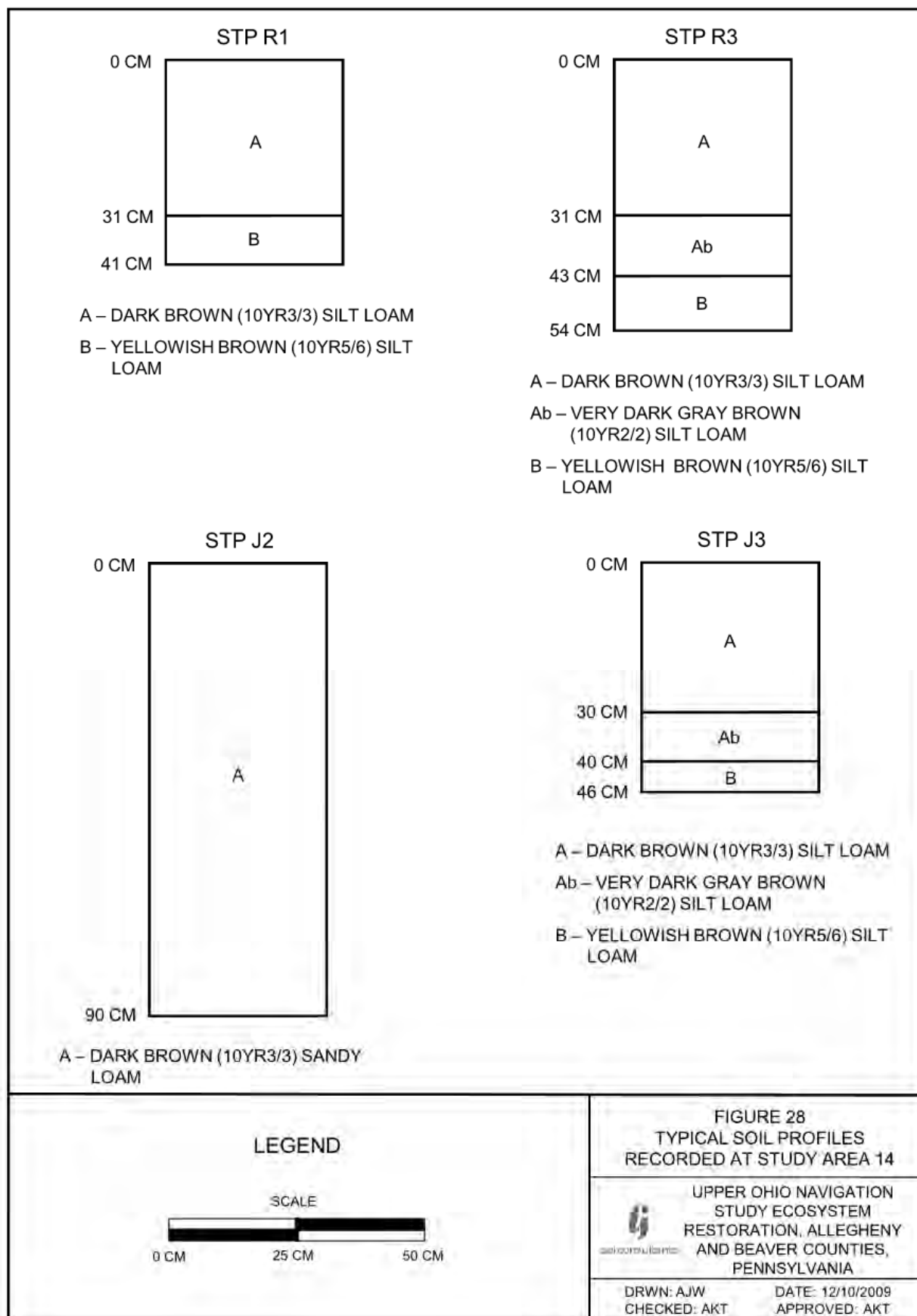
***Photograph 11. Overview of Forest on Peninsula of SA 14. View West. (Photograph Courtesy of Aerostar Environmental Services, Inc.)***



STPs J1 and J2 were excavated within Site 36BV9 limits of the peninsula area at 15-meter (50-foot) intervals (see Figure 27). Both shovel test pits fell within fill deposits. The soil stratigraphy in these two STPs revealed dark brown sandy loam fill (CA horizon) to a depth of over 90 cm (Figure 28). No artifacts were recovered from excavations in this fill. Although not apparent in the aerial photographs, this area was covered with fill deposits in the past.

The upland shrub and herbaceous plant habitat located along an access road on the north side of the APE was heavily disturbed and hummocky with localized areas that appeared to be undisturbed (see Photograph 7). Based on background research and pedestrian reconnaissance, these undisturbed areas had a high potential for intact soils and archaeological remains.

STP J3 was excavated in a relatively undisturbed area in this northern portion of SA 14 (Figure 28). Excavation produced three prehistoric artifacts (one piece of local Monongahela chert debitage and two pieces of sandstone fire cracked rock) from an intact buried A (Ab) horizon. Four radial STPs excavated at 5-meter (15-foot) intervals



east and west of STP J3 were negative. Radial STPs were not excavated to the north due to the presence of the railroad bed, or to the south due to the presence of wetlands.

Two typical soil profiles were encountered during excavation in this northern area. STPs R1 and R2 revealed an A-B soil horizon sequence consisting of a dark brown silt loam A horizon to an average depth of 31 cm overlying a yellowish-brown silt loam B horizon. Excavation of STPs J3 and radials R3 and R4 to the west revealed a soil stratigraphy of dark brown silt loam A horizon to an average depth of 31 cm underlain by a very dark grayish-brown silt loam buried A (Ab) horizon to an average depth of 41 cm. This Ab horizon was underlain by a B horizon comprised of yellowish-brown silt loam (see Figure 28). Excavations confirmed that portions of Site 36BV9, a multicomponent site spanning the Early through Late Woodland periods, remained intact within the northern portion of the SA 14.

The riparian area located between open water and the north APE boundary contained waterlogged soils that were not evaluated at this time. The disturbed area (on the eastern half of SA 14) has deep fill deposits across the area. It was not possible to assess the potential for intact cultural resources beneath the fill. The thick fill layer forms a protective layer between the intact buried soils and any surface activities. The palustrine emergent wetlands found where the stream empties into the open water area appear to be a low-lying area with intact soils. This area could not be assessed with subsurface testing due to the wet nature of the soils. The open water area would have been the stream drainageway and low stream terrace prior to the creation of Montgomery Pool. Site 36BV9 is located on either side of the open water area and may also be present within the submerged soils in the open water area. It was not possible to evaluate the



open water area within Study Area 14. The stream area was considered to have no potential for intact archaeological resources.

Based on the results of the pedestrian reconnaissance and soil probes, subsurface testing was conducted within the limits of Site 36BV9 within the bottomland hardwood forest and what appeared to be a relatively undisturbed area within the upland shrub and herbaceous plant vegetation area.

### ***Summary***

During background research, one previously recorded archaeological site (36BV9), and two potential nineteenth-century domestic archaeological sites were identified within the APE of Study Area 14. There are currently no structures over 50 years of age within SA 14. Activities on this industrial-owned property over the last 40 to 50 years have severely affected the integrity of the soils and archaeological resources contained within these soils. The limited Phase I fieldwork documented that portions of Site 36BV9 appear to be intact on the north side of the APE. No evidence of nineteenth-century domestic remains was identified. Therefore, an intensive archaeological investigation should be conducted to evaluate intact portions of 36BV9 in areas planned for ground-disturbing activities. A series of soil borings are recommended to investigate the potential for intact submerged portions in the open water and wetland areas, if these areas will be impacted.

## **Study Area 16**

### ***Project Description***

SA 16 is located around Phillis Island, an island on a bend on the Ohio River, at River Mile 35.0-35.7 (see Figure 7). This proposed foreshore dike/ring dike, measuring

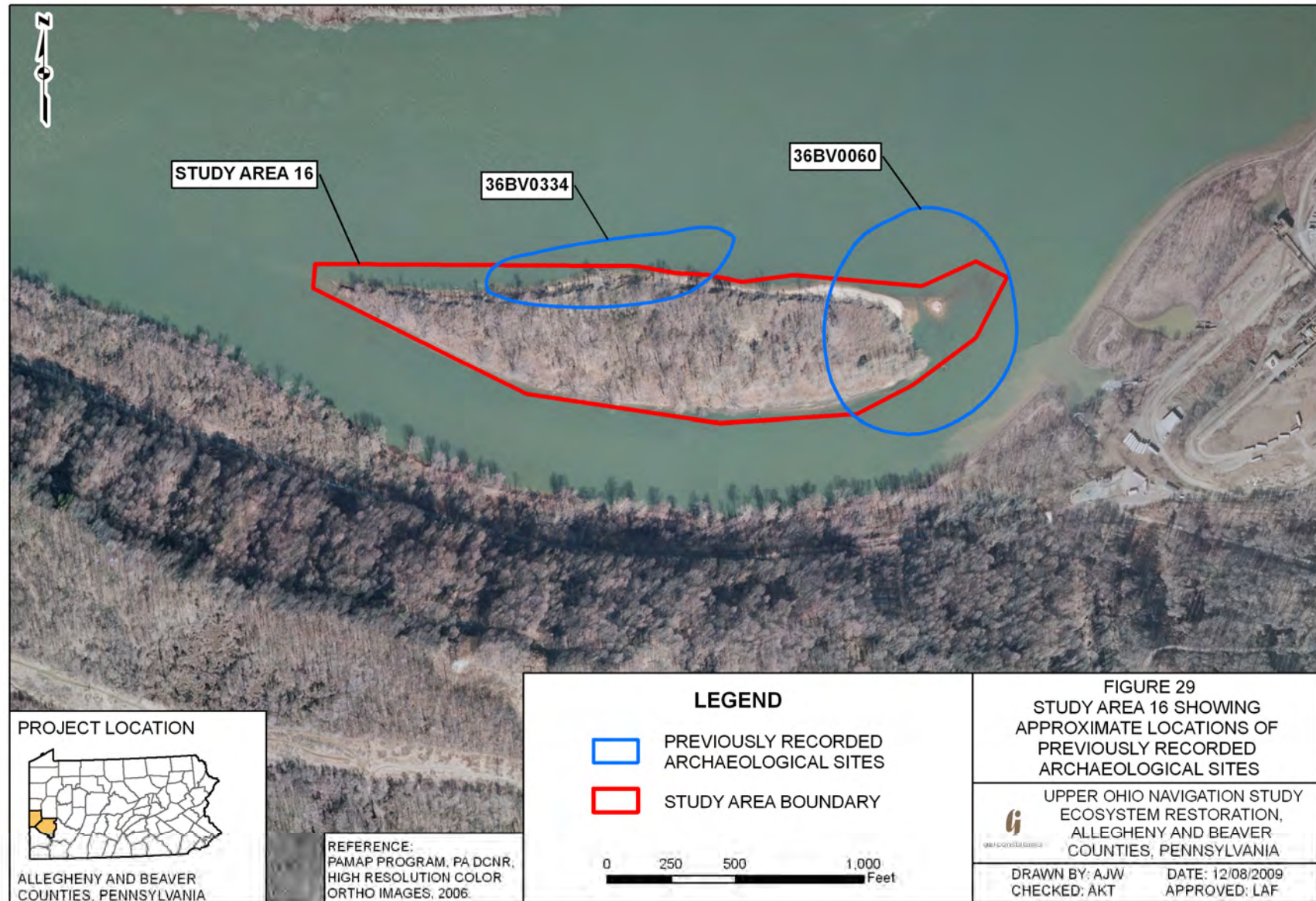


approximately 0.52 miles in length, encircles the island. The project area measures approximately 26.44 acres and will only have minimal shoreline impacts at the tie-in point for the dike. The tie-in point to the shore has not yet been established; therefore the immediate shoreline paralleling the extent of the proposed foreshore dike was examined during background research. Erosion to the island is severe, reducing the size of the island from 48.1 acres in 1951 to 20.1 acres in 2004 (based on aerial photograph information provided by the Pittsburgh District).

### ***Background Research***

Literature research was undertaken at BHP's office in Harrisburg for information regarding previous cultural resource investigations and recorded cultural resources in the vicinity of SA 16. PHRS and NRHP files indicate that there are no previously recorded architectural or historical resources located within or adjacent to SA 16. PASS files revealed two previously recorded archaeological sites (36BV334 and 36BV60) on Phillis Island (Figure 29). Site 36BV334, an unassigned prehistoric open habitation site, is located on the northern edge of the island. Site 36BV60, an Early Archaic period open habitation site identified by a collector, is situated on the eastern edge of the island (see Table 2).

There was one previously recorded archaeological survey (ER No. 2006-0942-042) conducted on Phillis Island. Archaeological and Historical Consultants, Inc. (AHC) conducted a Phase I archaeological survey of Ohio River islands, including Phillis Island, on behalf of the U.S. Fish and Wildlife Service in 1997 (Diamanti and Stiteler 2005). This survey identified Site 36BV334 and confirmed that Site 36BV60 had been badly



damaged by erosion. Both sites continue to be impacted by erosion of Phillis Island (see Figure 29).

The map review for SA 16 included three USGS topographic maps (1904, 1954, 1979), a 1939 aerial photograph, one map of the Ohio River and vicinity (Hayes 1877), and one historical atlas map (Caldwell 1876). In 1876 and 1877, Thomas Moore resided on Phillis Island (Figures 30 and 31). No shoreline structures or structures extending past the water's edge (i.e., docks, ports) are mapped within the project area, although Moore would have needed a boat for transportation. The 1997 archaeological survey conducted by ACH did not identify any historic-era archaeological resources (Diamanti and Stiteler 2005). By 1904, no structures are depicted on Phillis Island (Figure 32). SA 16 APE, which encircles the current island limits, illustrates how much of the island eroded away since 1904 (see Figure 32). The island appears to have remained uninhabited during the twentieth century.

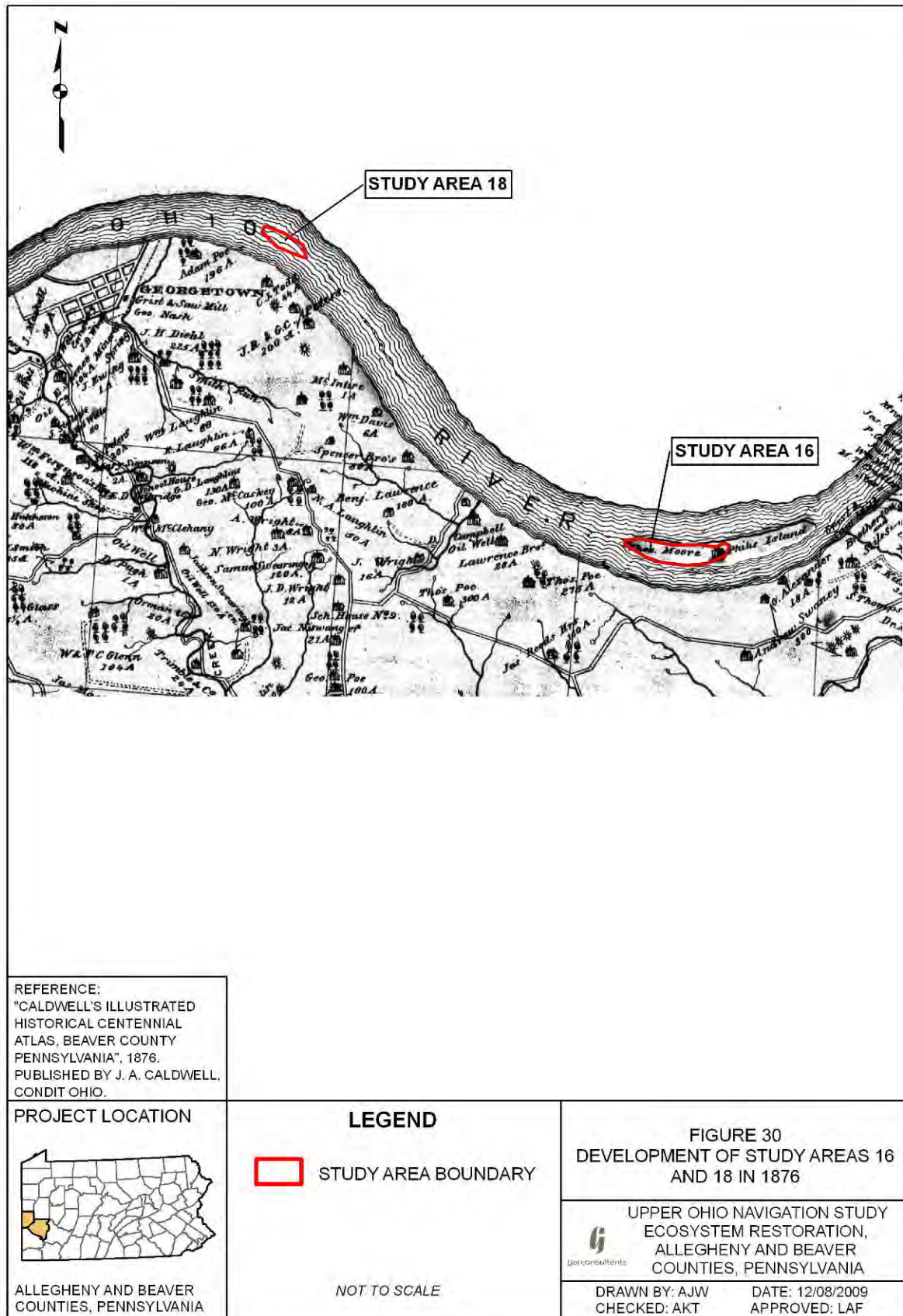
### ***Site View***

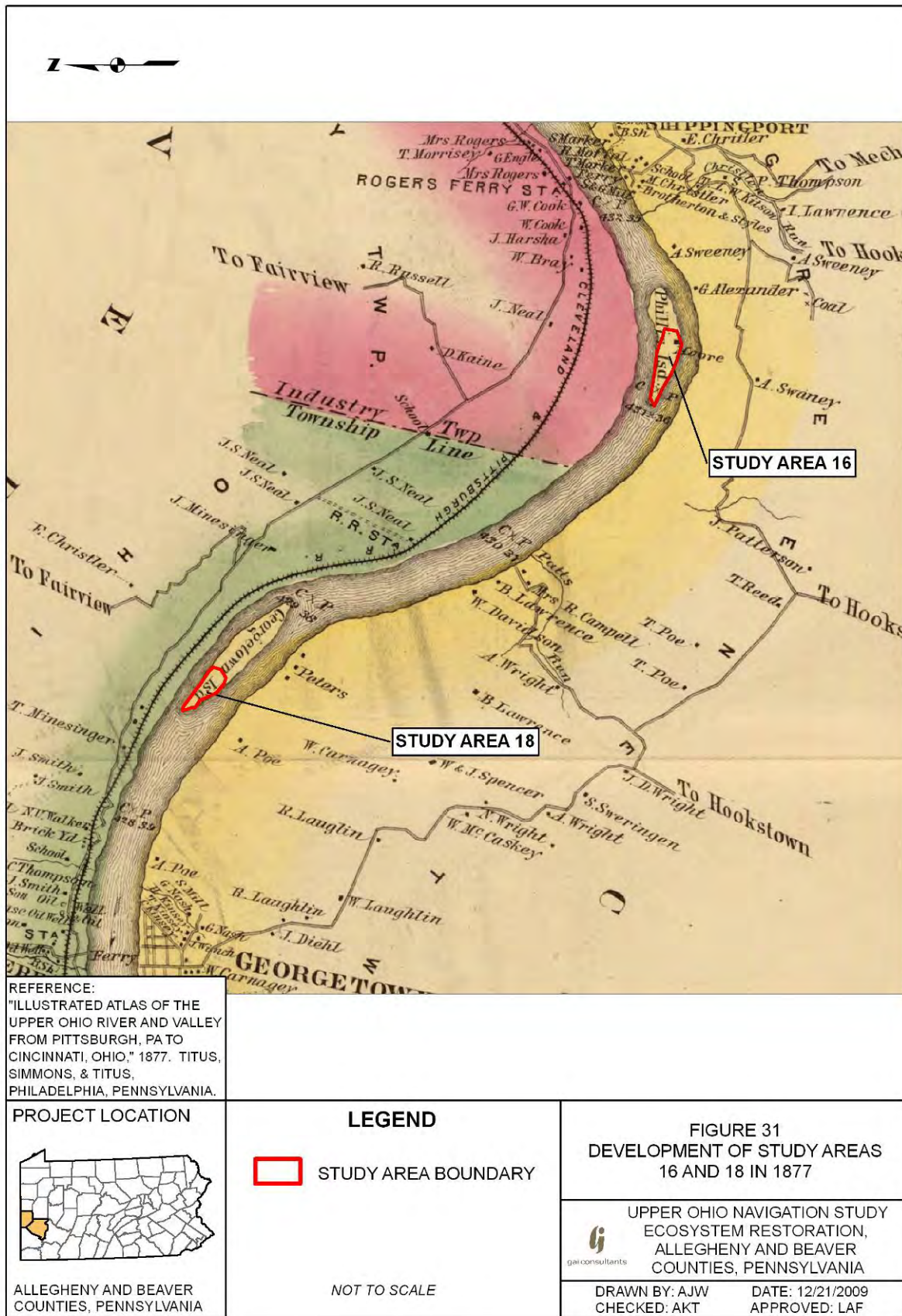
Study Area 16 was viewed by boat on October 6, 2009. There was no visible evidence of any archaeological remains along the shoreline. Erosion was clearly visible on the northeastern end of the island. Vegetation obscured much of the view on the southern and western banks (Photograph 12).

***Photograph 12. Overview of SA 16 showing Shoreline Erosion. View South.***

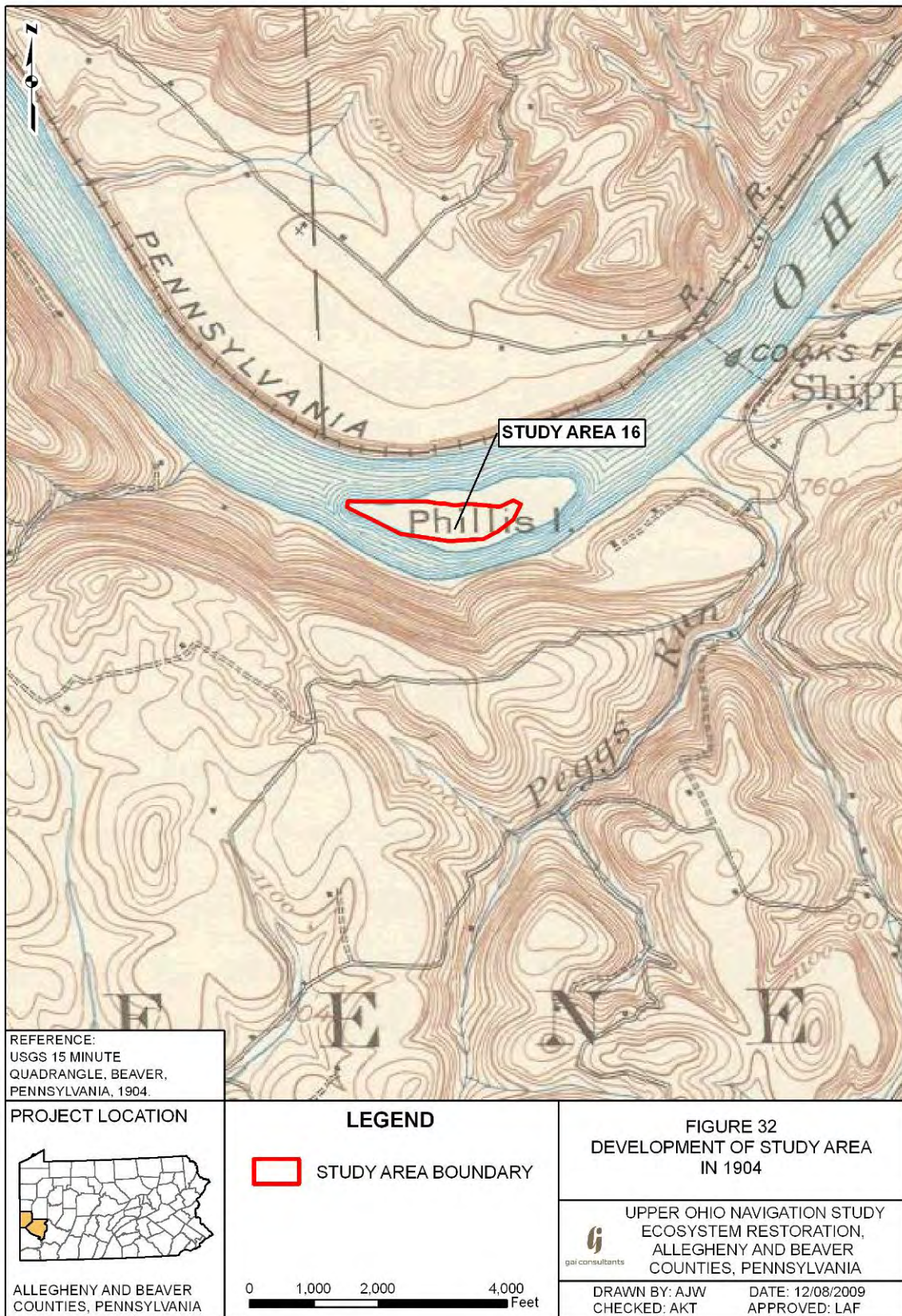














### ***Summary***

There are no recorded architectural or NRHP-eligible resources or mapped historic-era resources within the APE of SA 16. Map research indicates there is a potential for a ca. 1877 domestic archaeological site on the island but erosion may have washed remains of this site away. There are two recorded archaeological sites on the island. Depending upon the tie-in location there is a potential to impact a recorded archaeological site. Limited subsurface testing at the dike tie-in point and a review of interpreted side-scan sonar images are recommended to confirm that there are no terrestrial or submerged archaeological resources present prior to any ground-disturbing activities.

### **Study Area 18**

#### ***Project Description***

SA 18 is located around Georgetown Island, at River Mile 37.5-37.8 (see Figure 8). This proposed foreshore dike/ring dike, measuring approximately 0.25 miles in length, encircles Georgetown Island. The project area measures approximately 7.26 acres and will only have minimal shoreline impacts at the tie-in point for the dike. The tie-in point to the shore has not yet been established; therefore the immediate shoreline paralleling the extent of the proposed foreshore dike was examined during background research. Erosion to the island is severe, reducing the size of this island from 41.1 acres in 1951 to 4.9 acres in 2004 (based on aerial photograph information provided by the Pittsburgh District).

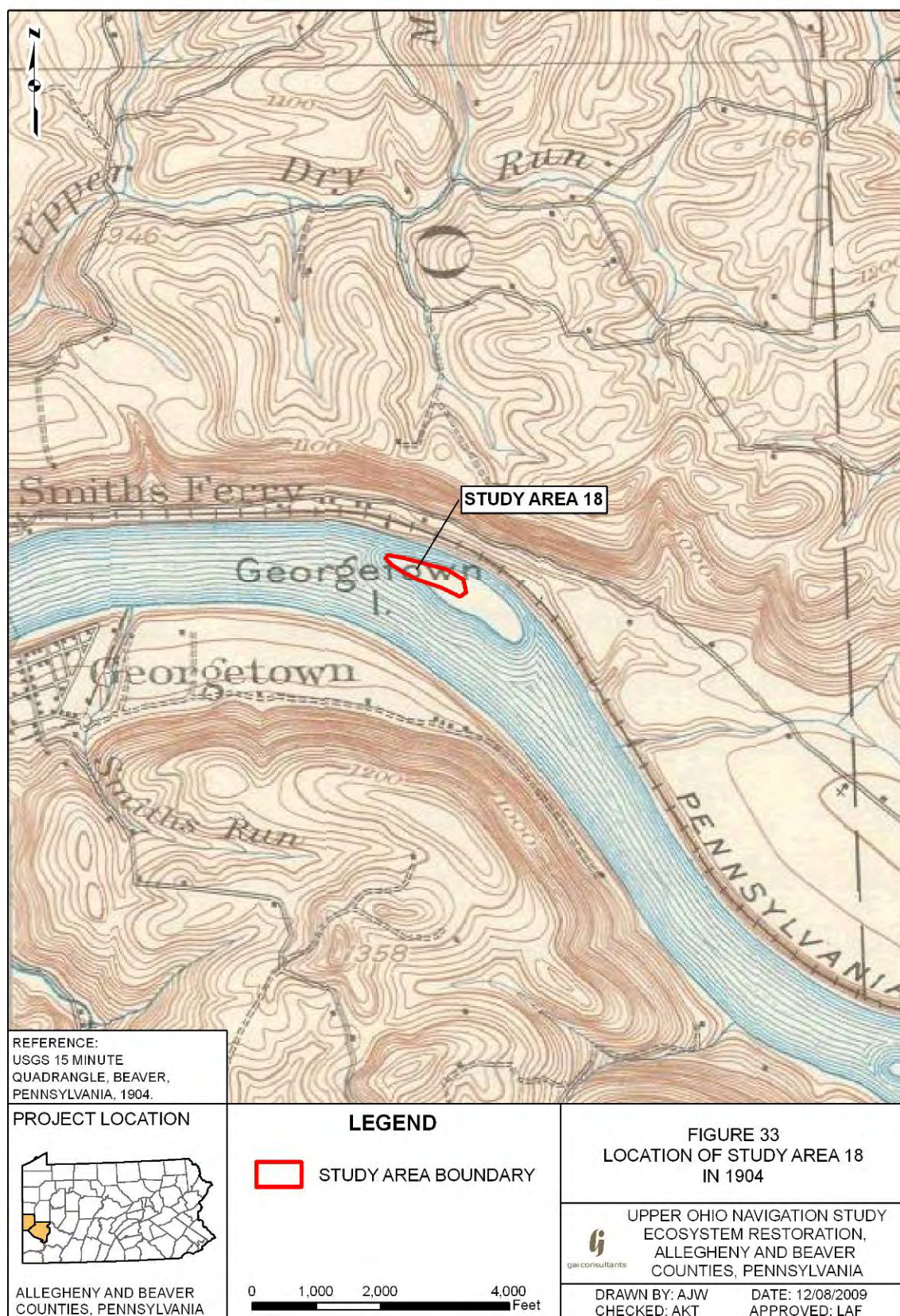
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***Background Research***

Literature research was undertaken at the BHP office in Harrisburg for information regarding previous cultural resource investigations and recorded cultural resources in the vicinity of SA 18. PASS, PHRS, and NRHP files indicate that no previously recorded cultural resources are located within SA 18 or its immediate vicinity (Georgetown Island).

Research determined that one previous archaeological investigation was undertaken on Georgetown Island. AHC conducted a Phase I archaeological survey of Ohio River islands on behalf of the U.S. Fish and Wildlife Service in 1997, including Georgetown Island (ER No. 2006-0942-042). The archaeological investigation for Georgetown Island was limited to background research (Diamanti and Stiteler 2005).

Map research for SA 18 included review of three topographic maps (1904, 1954, 1979), one 1939 aerial photograph, one map of the Ohio River and immediate vicinity (Hayes 1877), and one historical atlas map (Caldwell 1876). Georgetown Island does not appear on the 1876 atlas map, but is depicted on 1877 mapping (see Figures 30 and 31). There was no development shown on the island in 1877 and none indicated on the 1904 aerial photograph (Figure 33). An island lighthouse is depicted on topographic mapping in 1954 and 1979, although this structure is no longer visible (see Figure 8). Therefore, with the exception of a mid-to-late twentieth-century lighthouse, no historic-era resources are anticipated in SA 18.





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### *Site View*

Study Area 18 was viewed by boat on October 6, 2009. There were snags in the river between the island and the north bank. There was also large debris along the riverbank. Vegetation obscured much of the view of the banks of Georgetown Island (Photograph 13).



***Photograph 13. Overview of SA 18 at North End of Georgetown Island. View West.***

### *Summary*

There are no recorded archaeological, architectural, NRHP-eligible resources or mapped historic-era resources within the APE of SA 18. The only cultural resource investigation undertaken for Georgetown Island was limited to background research. Limited subsurface testing at the dike tie-in point and a review of interpreted side-scan sonar images are recommended to confirm that there are no terrestrial or submerged archaeological resources over 50 years of age present prior to any ground-disturbing activities.

## **CHAPTER 6. SUMMARY AND RECOMMENDATIONS**

In October 2009, a cultural resource assessment was conducted by GAI as part of the Upper Ohio Navigation Study, Pennsylvania, Ecosystem Restoration Appendix, on behalf of AES and the Nashville District. Nine proposed ecosystem restoration study areas totaling 184 acres in Allegheny and Beaver counties, Pennsylvania, were included in this survey. The purpose of this study was to assess the cultural resource potential of these nine potential ecosystem restoration areas. For eight of the study areas (5, 6, 7, 10, 11, 13, 16 and 18) the proposed activities involve fill placement below ordinary high water. A literature review and site view were conducted to identify known submerged vessels, recorded architectural and archaeological resources, and mapped resources that might be affected by potential fill placement. For the only study area with a substantial terrestrial component, literature review, site view, and limited subsurface testing was required under the SOW.

Interpreted side-scan sonar images were not available for this study. A review of these images for the nine study areas is recommended before beginning any of these ecosystem restoration projects.

There was no potential for architectural structures over 50 years of age within any of the nine APEs. There were no recorded archaeological resources or mapped historic-era resources associated with SA 6 and SA 11, which are located entirely within the river. No additional archaeological investigations are recommended except to review interpreted side-scan sonar images to confirm that there are no submerged resources over 50 years of age within these study areas.



There are no recorded archaeological resources or mapped historic-era resources associated with SA 10, SA 13, and SA 18. Limited archaeological investigation of the riverbank tie-in location (pedestrian reconnaissance and judgmentally placed STPs), and review of interpreted side-scan sonar images, are recommended prior to any ground-disturbing activities.

SA 5 has a high potential to contain intact archaeological remains (on the river bottom and along the riverbanks) associated with the former Davis Island Lock and Dam, a NRHP-listed resource. A ground reconnaissance of the riverbank tie-in location and review of interpreted side-scan sonar images are recommended prior to any ground-disturbing activities.

There was a mapped historic-era resource associated with SA 7's eastern terminus (a ca. 1828 dam). A previous archaeological Phase IA recommended testing along the shoreline in the vicinity of a bridge replacement; however, the area was not investigated due to hazardous waste disposal in the area. The soil survey indicates that fill was deposited along the riverbank in the study area vicinity. In addition to review of interpreted side-scan sonar images, pedestrian reconnaissance, and geomorphology survey, limited subsurface testing (if necessary) at the tie-in location is recommended.

A previously recorded stratified Early Woodland through Late Woodland stratified prehistoric village site (36BV9) covers most of SA 14. Limited subsurface testing indicated that most of the site is disturbed or buried by past fill activities, but an intact area of Site 36BV9 was identified along the north side of SA 14. GAI recommends that intact portions of Site 36BV9 (north side of study area) be avoided. If avoidance is

not feasible, then GAI recommends evaluating the site for its potential for listing to the NRHP under Criterion D.

SA 16 is the location of a proposed ring dike surrounding Phillis Island. Two previously recorded prehistoric archaeological sites were documented on the island, but erosion has destroyed portions of these sites (and the island). It is unlikely that the submerged proposed ring dike will impact intact archaeological deposits, but it will help protect the intact portion of these sites on the island by halting or greatly reducing the rate of erosion. Depending upon the tie-in location, there is a potential to impact an archaeological site. Limited subsurface testing at the dike tie-in point and a review of interpreted side-scan sonar images are recommended to confirm that there are no terrestrial or submerged archaeological resources present prior to any ground-disturbing activities.



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2004 Prehistoric Context Study (Chapter Three) in Support of Data Recovery Excavations at Site 36AL480, Leetsdale, Allegheny County, Pennsylvania. Prepared for U.S. Army Corps of Engineers, Pittsburgh District by Gray and Pape, Inc., Cincinnati.



**APPENDIX A**  
**PHMC Report Summary Form**





## Archaeological Report Summary Form

ER# 1997-1617-042

DATE 12/29/2009

**PROJECT CHECKLIST:** Please fill out a copy of this checklist and include it with your initial report submission, (including with management summaries or draft reports). This form may be downloaded and expanded as needed, but please do not eliminate any fields.

- Report Title** Phase I Cultural Resources Assessment, Upper Ohio Navigation Study Environmental Restoration, Allegheny and Beaver Counties, Pennsylvania
- PI** Lori A. Frye, M.A., RPA ( ☒ MA, ☐ PhD) /**Firm** or Institution GAI Consultants, Inc.
- Report Date** (Month/Day/Year) December 30, 2009
- Number of Pages** 120
- Agency Name** US Army Corps of Engineers Federal ☒ State ☐
- Project Area County/Municipality** (list all)

County	Municipality
Allegheny	Stowe Township
Allegheny	Bellevue Township
Allegheny	Robinson Township
Beaver	Harmony Township
Beaver	Rochester Township
Beaver	Industry Township
Beaver	Shippingport Township
Beaver	Ohioville Township

- Project Area Drainage(s)**, (list all)

Sub-basin	Watershed
The Ohio (20)	Upper Ohio River (G)

- Project Area Physiographic Zone(s)** (list All) (Use DCNR Map 13 compiled by W.D. Sevon, Fourth Edition, 2000.)

Physiographic Zone
Appalachian Plateaus (Pittsburgh Low Plateau)

- Report Type** (some reports are combinations, check as many as apply to this report)  
☒ Phase IA/Sensitivity Study



- |  |   |
|--|---|
| <input type="checkbox"/> Phase I             | <input type="checkbox"/> Geomorphology            |
| <input type="checkbox"/> Phase II            | <input type="checkbox"/> Determination of Effects |
| <input type="checkbox"/> Phase III           | <input type="checkbox"/> Other _____              |
| <input type="checkbox"/> Historic Structures |   |

10. **Total Project Area** 74.5 hectares (184 acres)
11. **Low Probability/Disturbed Areas** 19.5 hectares = 26 % of project area
12. **Phase I Methods used for total project** (check as many as apply)
- ☒ shovel tests, ☐ controlled test units/deep tests,  
☐ surface survey, ☐ informant interview, ☐ other: \_\_\_\_\_
13. **Total Number of Sites** Encountered/Phase I 1
- Total Sites Tested/Phase II \_\_\_\_\_
- Total Sites Excavated/Phase III \_\_\_\_\_

**14. Updated PASS Information:** Please complete an updated PASS form **for each site** reported by this report. Updated forms need only include the new information and the site number and name.

**15. PASS Site Specific Information:** In addition, the following pages must also be completed **for each site**. Complete only the portions that pertain to the current report. If the report is a stand-alone Phase II, you do not need to fill in the Phase I methods, since they should have been included in the summary form for the previous report.

## 15. PASS Site Specific Information

Please complete the following **for each site** reported by this report.

**PASS NUMBER 36BV0009**

### A. Phase I Methods (how the site was located - check as many as apply)

- ☒ shovel tests, ☐ controlled test units/deep tests,  
☒ surface survey, ☐ informant interview, ☐ other: \_\_\_\_\_

### B. Phase II Methods

- ☐ controlled surface collection  
☐ controlled excavation w. screening of plowzone, > 5 units  
☐ mechanical stripping of plowzone (\_\_\_\_\_%)  
☐ deep excavation units  
☐ remote sensing  
☐ other \_\_\_\_\_

square meters of site tested: \_\_\_\_\_ sq. m

% of site area tested: \_\_\_\_\_ %

### C. Phase III Methods

- ☐ controlled surface collection  
☐ controlled excavation w. screening of plowzone, > 5 units  
☐ mechanical stripping of plowzone \_\_\_\_\_%  
☐ deep excavation  
☐ block excavations  
☐ remote sensing  
☐ environmental reconstruction (soils, floral, pollen)  
☐ dietary reconstruction (floral, faunal)  
☐ intensive lithic analysis (functional)  
☐ intensive lithic analysis (technological)  
☐ raw material sourcing  
☐ ceramic analysis (seriation)  
☐ ceramic analysis (functional)  
☐ blood residue  
☐ other \_\_\_\_\_

square meters of site tested: \_\_\_\_\_ sq. m

% of site area tested: \_\_\_\_\_ %

**Recommendations** (normally completed only after Phase II):

-- NR Eligibility recommendation

☐ eligible, ☐ ineligible, ☐ undetermined

-- reasons for determination (check as many as apply; expand as needed)

☐ eligible: Criterion A. Explain \_\_\_\_\_☐ eligible: Criterion B. Explain \_\_\_\_\_☐ eligible: Criterion C. Explain \_\_\_\_\_☐ eligible: Criterion D:☐ settlement patterning (intersite patterning)☐ intrasite artifact patterning☐ features☐ radiocarbon dating☐ organic preservation☐ evidence of culture change through time☐ stratified ☐ temporally discrete clusters☐ burials/human remains☐ technological☐ economics☐ ethnicity☐ dietary☐ other(specify): \_\_\_\_\_☐ ineligible☐ disturbed☐ ephemeral occupation☐ redundant information☐ undatable☐ other (specify): \_\_\_\_\_**E. Artifacts/Collections**☒ will be donated to the State Museum of Pennsylvania☐ gift agreement from private owner enclosed**- or -**☐ transfer of responsibility from State Agency enclosed☐ election of repository from Federal Agency enclosed☐ artifacts washed/marked/cataloged following State  
Museum guidelines

-- collection will be submitted by \_\_\_\_\_(date)

☐ will be donated to other approved repository ( **this option must be negotiated with the BHP and State Museum or stated as stipulation in MOA**)

☐ curation agreement enclosed

☐ artifacts washed/marked/cataloged following host guidelines

-- collection will be submitted by \_\_\_\_\_(date)

☐ will be retained by land owner (☐ whole or ☐ partial collection)

☐ expanded documentation enclosed for items retained

☐ proof enclosed that owner was notified of the option to

donate the collection to the State Museum and chose to retain the collection:

☐ letter from owner indicating desire to retain collection

- or -

☐ agency or representative discussed donation option with owner on \_\_\_\_\_(date)

- and -

☐ copy of letter and certified letter receipt indicating that the owner was offered this option in writing.





## **APPENDIX B**

### **Scope of Work**



28 August 2009

**STATEMENT OF WORK**

**CONTRACT NO. W912QR-08-D-0009, TASK ORDER NO. XXX**

**UPPER OHIO NAVIGATION STUDY, PENNSYLVANIA  
ENVIRONMENTAL RESTORATION APPENDIX INCLUDING  
PLAN FORMULATION AND EVALUATION**

**And LIMITED ENVIRONMENTAL AND CULTURAL RESOURCE ASSESSMENTS**

**1. BACKGROUND**

The Upper Ohio Navigation Study, Pennsylvania, is a feasibility planning study for alternatives to modernize the three locks and dam facilities on the Ohio River in Pennsylvania, viz. Emsworth, Dashields and Montgomery locks and dams. During the Feasibility Scoping Meeting for this study, inclusion of aquatic ecosystem restoration (ER) planning was a topic of discussion. As the result of Corps Headquarters' comments during the Feasibility Scoping Meeting, the Pittsburgh District initiated ER planning efforts to be lead by the Nashville District as part of the overall navigation study. This task order will examine existing resource conditions at each site and compare future conditions with and without ER alternatives to develop ecosystem restoration potential within the study area and identify "best buy" alternatives. This planning effort will be documented in an ER Appendix that will be incorporated into the overall Feasibility Study and its accompanying National Environmental Policy Act (NEPA) environmental impact statement. Included in this planning analysis is additional characterization of the suitability of lands necessary to conduct any proposed ER projects at these sites.

As part of the ER planning efforts to date, 16 separate project sites (in 14 distinct areas) have been identified by the Corps- Nashville District as having the greatest potential for providing desired aquatic ER benefits that address needs identified by an Inter-Agency group. Table 1 lists potential ER sites and provides basic information about location (pool, river mile, bank), possible ER methods, and characterization needed. The boundaries of each site are shown in maps that are provided in Appendix A. Five sites (Sites # 1, 4, 14, 15, 17) involve floodplain or island terraces which require certain tasks and eleven sites (Sites 2, 5, 6, 7, 9, 10, 11, 12, 16, 18, 19) involve aquatic fill placement at or below ordinary high water and require slightly less performance of some tasks.

The work to be conducted under this Task Order includes the development of the ER Appendix including plan formulation, alternative development, aquatic benefits projections, description of models and methods used, and evaluation of incremental costs and cost effectiveness analysis. Development of this appendix will require close coordination between the AE and Corps – Nashville District throughout the process to ensure necessary information and products are provided by each party and formulation decisions are sound and policy compliant. The environmental characterization of the potential flood plain restoration sites includes a Phase I

Environmental Site Assessment (ESA), a cultural resource survey, and a vegetation survey that includes species composition and percent cover. Research for these task order components may involve a certain amount of overlap. The Contractor will be expected to plan and conduct their work to avoid unnecessary duplication in areas of overlap.

The Phase I Environmental Site Assessment will be conducted to assess the sites' potential for environmental liability concerns prior to obtaining a federal interest in real estate for project purposes. The purposes of the other assessments to be conducted include the identification and preliminary evaluation of the significance of natural and/or cultural resources at each of the sites. This information will be necessary for the navigation study to assess the significance of ER alternatives involving the use of one or more of these sites, in furtherance of compliance with environmental and cultural resource protection legislation.

## 2. CONTRACTOR RESPONSIBILITIES

### A. General.

The Contractor shall furnish all personnel, equipment, materials, supplies, labor, transportation, shipping, communications and services required to accomplish the work specified under this scope of work (SOW). The Contractor shall be responsible for any and all materials and deliverables covered by this scope of work until they are delivered to and accepted by the District.

Site Access. The Contractor shall not obtain any real estate rights on behalf of the Federal Government to conduct this work. All necessary real estate rights-of-entry will be acquired by the District on behalf of the Contractor.

Quality Control. A goal of the District is to ensure that quality products, satisfying the customer expectations, are delivered on schedule and within budget. The Contractor shall support this goal through developing a Quality Control Plan (QCP) to ensure that technical quality and schedules are achieved in the products produced as a result of each task order. The basic elements of a QCP include procedures for assigning independent technical review personnel, establishing a review process with checkpoints, defining important elements for review, and documenting the results of the review. Guidelines for the QC process are found in ER 1110-1-12, Engineering and Design Quality Management, 30 September 2006.

Coordination. Contractor's personnel shall be expected to work in close coordination with the Contracting Officer (CO), his authorized representative, or other assigned District personnel. The primary point of contact for this Task Order is Chip Hall, 615-736-7666 (alternative - Tim Higgs, 615-736-7863. The technical point-of-contact for the cultural resource component is Valerie McCormack, Archaeologist, 615-736-7847.

The Contractor shall provide brief weekly progress reports following award of the Task Order. These reports may be submitted electronically. The Contractor shall routinely maintain a written record of all conferences, meetings, discussions, and other communications with others on

matters relative to the assigned work, and submit a copy of these records to the District point of contact within five business days.

The Contractor is responsible for initiating timely coordination with the District to discuss and expedite solution of perceived problems or issues.

Safety. The Contractor will be responsible for the safe conduct of all work under this SOW, in adherence to the latest version of the US Army Corps of Engineers Safety and Health Requirement Manual EM 385-1-1 (available at <http://www.usace.army.mil/inet/usace-docs/eng-manuals/em385-1-1/toc.htm>).

Publishing Restrictions. Neither the Contractor nor a Contractor's representative shall release or publish any information, sketch, photograph, report, or other material of any nature obtained or prepared under this contract without specific written approval of the Contracting Officer or his authorized representative. Records of archaeological site locations are considered to be internal documents and are not for public distribution. All reports, drawings, maps, photographs, notes, and other material developed in the performance of this Task Order shall be and remain the sole properties of the Government and may be used on any other work without additional compensation to the Contractor. The Contractor agrees not to assert any rights and not to establish any claim with respect thereto.

Travel and Per Diem. Reimbursement for travel and per diem will be according to prevailing federal rates established by the General Services Administration [<http://www.gsa.gov>] as reported in the Joint Travel Regulation.

## B. Specific Tasks.

### Task 1. Prepare Quality Control Plan

The Contractor will develop a Quality Control Plan (QCP) to ensure that technical quality and schedules are achieved in the products produced under this Task Order. The basic elements of a QCP include procedures for assigning independent technical review personnel, establishing a review process with checkpoints, defining important elements for review, and documenting the results of the review. Guidelines for the QC process are found in ER 1110-1-12, Engineering and Design Quality Management, 30 September 2006. The schedule, at a minimum, will assign delivery dates for each of the reports listed in Task 6. The Plan will be submitted in accordance with the specifications under Task 6. "Report Preparation and Submittals".

### Task 2. Participate in a Site Visit

Appropriate Contractor personnel shall attend and fully participate with District personnel in a two (2) day site visit of all sites. This is anticipated to take two days and will require boat access to reach island sites. (Note: The Contractor will be required to provide their own boat.) The intent of these site visits is to allow for the Contractor to become familiar with the sites. The completion of this Task will precede initiation of field work (or be in conjunction with)



scheduled under other tasks. Site visits to sites 1, 4, 14, 15, 17 (to conduct vegetation surveys discussed in more detail in Task 4) should be started as soon as possible.

### Task 3.A. Conduct the Phase I Environmental Site Assessment

This task is pertinent to Sites 1, 4, 14, 15, and 17 (listed in Table 1) where activities may involve modifications to floodplain or island terraces. The Phase I ESA should utilize the procedures outlined in ASTM Practice E 1527, titled *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*. The Phase I ESA will identify, to the extent feasible, recognized potential environmental concerns in connection with the property. The site assessment findings provide environmental site clearance for real property transactions. The intent is to demonstrate “due diligence” in conducting “all appropriate inquiry” in order to provide a basis for a legal defense under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

The Phase I Environmental Site Assessment activities, as a minimum, are as follows:

- a. Environmental Database Search – Perform a database search 1-mile radius from each of the potential flood plain restoration properties.
- b. Physical inspection of the project area - Conduct a walkover of each site and adjacent parcels to the properties [to the extent allowable under federal rights-of-entry]. Interview local officials and people on or near the project site, as appropriate.
- c. Aerial photographs – Determine past and current property uses of property.
- d. Sanborn maps – Determine past property uses.
- e. Deed Searches – Conduct a Property Title History Report.
- f. Landowner contacts – Call, mail the questionnaire, and/or interview the landowner requesting information pertaining to the land that they own.
- g. Regulatory Information Review – If appropriate, review records from the Pennsylvania Department of Environmental Protection (PADEP) and other agencies.

### Task 3.B. Phase II Environmental Site Assessment Recommendations

The Phase I ESA Report will present written justification for or against conducting a Phase II site investigation. State if a Phase II Site Investigation is recommended or not recommended. If recommended, formulate a sampling program that includes the type and level of testing required for a Phase II Site Investigation that would satisfactorily encompass the concerns identified in the Phase I study. In addition, based on the Phase I results, prepare an opinion on what potential remediation costs may entail and include a general magnitude of potential cost.

### Task 4. Prepare Ecosystem Restoration Appendix

This task is pertinent to all 16 ecosystem restoration sites in Table 1. This task is to be lead by GAI Corporation, a sub-contractor to Aerostar due to previous experience with this project and this task. This task involves development and preparation of the ecosystem restoration appendix and will require close coordination with Corps staff and a detailed knowledge of Corps Planning policy and regulations. It will involve further refinement of products produced to date by the

Nashville District. Potential ER sites cover a range of restoration methods aimed to provide aquatic habitat types that are limited within the study area. The Corps has developed preliminary designs for sites listed in Table 1 and these will be refined by Corps engineering elements. A brief fact sheet for each site will be provided that further describes existing conditions, anticipated restoration alternatives for each site, and additional information pertinent to development of ER site evaluation. Formulation and evaluation may lead to modifications of designs to maximize aquatic benefits and/or reduce costs. Corps will provide cost estimate information required in this effort. Other sources of information to be utilized include ORSANCO reports for each pool, State or Corps water quality information, pertinent Corps Ohio River documents and surveys (Sand and Gravel EIS, mussel surveys, bathymetry and substrate information collected by Pittsburgh District). The following are sub-tasks that are part of this effort:

1. Plan Formulation: Use Phase 1A NER Report (provided by Corps) and Initial site fact sheet to further development alternatives for each site. At a minimum, the alternatives listed on the site fact sheet shall be considered.
2. Existing Habitat Conditions: Use models described later, develop existing habitat conditions for targeted fish species and describe general habitat for all riparian and/or aquatic species.
3. Project Habitat Changes (Four Time Intervals with and without ER Project): This involves projecting model parameters over time both with and without ER alternatives to assess future habitat conditions. This requires knowledge of natural processes, and how natural resources and manmade influences would alter or develop in the site area as time progresses.
4. Aquatic Ecosystem Benefits Analysis: Estimate Habitat Units (HU) resulting with and without ER alternatives in place.
5. Other considerations: In addition to aquatic changes, discuss how other uses of the river would be affected including but not limited to commercial navigation, recreation, non-aquatic wildlife, and aesthetics. Discuss any regulatory considerations (environmental or cultural) that would have to be cleared prior to construction and any long-term operation and maintenance considerations.
6. Perform Cost-Effectiveness/Incremental Cost-Analysis (CE/ICA): After being provided cost information for each alternative from the Corps, perform a CE/ICA using IWR-Suite software. This will rank project by project benefits produced and identify those alternatives that produced the most habitat per unit cost (i.e., the “Best Buy” Plans). Least cost plans will also be identified.
7. ER Appendix Reports: Each step of the evaluation shall be coordinated with Corps staff to get concurrence of future direction. An Initial draft ER Appendix Report summarizing the evaluation shall be submitted for review and comment. A Final Draft ER Appendix will incorporate Corps comments (both Nashville and Pittsburgh Districts and local

sponsor input) by the end of November 2009 (tentative schedule now is for In Progress Review in early January, this will probably allow for additional work in December to tie up loose ends).

All evaluation methods shall conform to Corps Planning regulations and policy, including model certification requirements. The contractor shall meet multiple times with Corps staff to develop initial and in-progress reviews (anticipate five meetings in person at a location in the Nashville vicinity). Approved (already Corps-certified) Habitat Suitability Indices (HSI) for fish listed on the EDM Fish Passage Lists are to be used to evaluate project benefits. Fish species to be used are those most likely to utilize the post-restoration habitat condition being desired (largemouth bass or bluegill for shallow areas and walleye for deep sites, etc). A key aspect of this is development of input data to run the HSI model. Existing habitat conditions for each site will be developed, then with and without project conditions projected for four time intervals (Initial, 5 yr, 25 yr, and 50 yr).

The Contractor shall perform an overview-level environmental assessment of all potential flood plain restoration sites identified in this SOW and prepare a report describing the study and methodologies. Each of the sites is to be treated separately in the report. This assessment shall be conducted at a general level of effort sufficient to determine the presence and approximate extent of any significant natural resources. Significance is broadly defined to include resources protected under federal or state law, resources having public recognition as being important, and resources considered to have scientific or educational value.

The assessment shall include a records research and a field investigation. Evidences of historic and present disturbances/development, such as utilities or other structures, will be documented in the report. The Contractor shall attempt to interview the land owners to identify and document any long term plans that would affect the future condition of their properties, including their willingness to work with the Corps on potential ER projects which would require long term conservation agreements or conveying property to a local sponsor.

The Contractor will identify the potential for federal- and state-listed threatened and endangered species to occur at the studied sites through consultation with the Pennsylvania Natural Diversity Index and the appropriate resource agencies. If any potential species are identified through consultation, the Contractor will make an effort in field investigations to identify the presence or potential for presence of that species.

The field investigation will be conducted at a level of detail sufficient to describe general topography, habitat types, dominant and typical vegetative cover, wildlife habitat values, and land use. Particular attention will be given to identification and characterization of federally recognized or regulated resources: flood plains, prime farmland, wetlands, threatened and endangered species, etc. Also, detail will be given to identification of vegetation species and their percent cover, also including location within the various vegetative layers (i.e., ground cover, seedling, saplings, canopy, and presence of exotic species). These vegetation surveys are pertinent to Sites 1, 4, 14, 15, and 17 (listed in Table 1) where activities may involve modifications to floodplain or island terraces and should be conducted as soon as possible.

The Contractor shall prepare site maps that delineate the different habitat types (e.g. riparian, upland, stream, wetland, etc.), and identify acreages of each. These maps will be included in the report, and will be prepared and submitted compatible with ArcView for incorporation into the District's GIS database.

#### Task 5. Perform a Cultural Resource Assessment.

This task is pertinent to Sites 1, 4, 14, 15, and 17 (listed in Table 1) where activities may involve modifications to floodplain or island terraces. For all other sites involving fill placement below ordinary high water, only a literature review is required to identify any known submerged vessels that might be affected by potential fill placement. Detailed cultural resources surveys of the bank face that might be affected by connections to foreshore dikes (Sites 5, 7, 10 12, 16, 18) will be deferred until specific tie-in locations are known. The Contractor shall perform a cultural resources assessment of all potential restoration sites identified in this SOW. The Contractor shall present the cultural resource assessment in a cultural resources report that describes the study, methodologies, and findings. The cultural resources assessment will consist of records research and limited field investigation consistent with the requirements of the Pennsylvania Bureau for Historic Preservation (PaBHP) for a Phase I cultural resources report. Each of the work areas and any associated historic properties are to be assessed and reported separately in the study report.

The Contractor shall designate a Principal Investigator (PI) who shall be responsible for the validity and professional quality of the cultural resource work, and who shall be the primary point of contact for the routine administration and coordination. Contractor personnel employed to perform the specified work shall meet the relevant qualifications as specified in Archeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines (Federal Register Vol. 48, No. 190).

Field investigations. The limited field investigations shall consist of a combination of pedestrian reconnaissance and excavations consisting of a limited series of 50cm shovel probes (SP). All areas with available rights-of-entry are to be fully covered with pedestrian reconnaissance.

All standing structures or objects will be inventoried and photographically recorded. All structures or objects having an estimated age of 50 years or more shall be documented on a Pennsylvania Historic Sites Survey Form.

Reporting. The cultural resource report shall document all sources of information consulted in the records research. The discussion and conclusions section of the report shall include an assessment of the cultural resource potential for each survey area and landform. If further testing is indicated or would have to be performed at a future date (once final site designs are conducted), the Contractor shall recommend the types and level of testing necessary to complete a full Phase I and/or Phase II investigation. Should the Contractor determine that any site(s) may be eligible for listing to the National Register of Historic Places, they will first consult with the District before making any recommendations in the report or consulting with the PaBHP. The authority for recommending determinations of eligibility rests with the Pittsburgh District Engineer.

## Task 6. Report Preparation and Submittals.

The Contractor will prepare and submit separate reports for:

- a. Quality Control Plan,
- b. Phase I Environmental Site Assessment and Phase II ESA Recommendations,
- c. Ecosystem Restoration Appendix,
- d. Cultural Resource Survey.

The Contractor shall prepare and submit each report in draft and final versions, except for the ER Appendix which is detailed elsewhere. The draft version shall be complete in all respects to allow for a single, complete review by the District. Any significant deficiency in the content of the draft report will constitute sufficient reason for non-acceptance. The draft and final reports shall be submitted in both hard copy and electronic copy for review.

Specifications for each report are summarized below:

- a. Quality Control Plan:
  - Draft – One (1) hard copy, unbound with removable corner clip for review.
  - Final – Three (3) bound hard copies, and provide electronic copy (1) on CD and separately as a scanned PDF file (1).
- b. Phase I Environmental Site Assessment Report and Phase II ESA Recommendations
  - 95% complete report - Six (6) copies unbound with removable corner clip for review. The report shall be typed double spaced in Times New Roman, 12 pt font, with one-inch margins. The hard copies shall be printed single-sided. The Contractor will summarize/discuss the methods and findings collected in Phase I ESA (Task 3.A., Conduct the Phase I Environmental Site Assessment).
  - Final Report - Eleven (11) copies, one (1) copy unbound, ten (10) copies in binders. The final report shall be typed single spaced in Times New Roman, 12pt font, with one-inch margins. The hard copy shall be printed two-sided. Provide electronic copies of the native electronic files, (1) on CD and one (1) copy separately as a scanned PDF file.
- c. Ecosystem Restoration Appendix
  - The initial (Corps review) and final (Corps second review and sponsor review) draft report shall be double spaced in Times New Roman 12pt font, or equivalent, with one-inch margins, and printed two-sided. Five (5) bound hard copies. Binding may be of any suitable type. One (1) electronic copy on CD in MS Word and one (1) copy separately as a scanned PDF file.

- The final report shall be single spaced in Times New Roman 12pt font or equivalent, with one-inch margins, and printed two-sided. Five (5) hard copies: One (1) hard copy unbound, and four (4) copies bound. Binding may be of any suitable type. Provide electronic copy (1) on CD and one (1) copy separately as a scanned PDF file.

#### Cultural Resource Report

- The draft report shall be double spaced in Times New Roman 12pt font, or equivalent, with one-inch margins, and printed two-sided. Five (5) bound hard copies. Binding may be of any suitable type. One (1) electronic copy in MS Word and one (1) copy separately as a PDF file.
- The final report shall be single spaced in Times New Roman 12pt font or equivalent, with one-inch margins, and printed two-sided. Five (5) hard copies: One (1) hard copy unbound, and four (4) copies bound. Binding may be of any suitable type. Provide one (1) electronic copy in MS Word and one (1) copy separately as a PDF file.

### 3. GOVERNMENT RIGHTS AND RESPONSIBILITIES

Work Products. All reports, drawings, maps, photographs, notes, and other materials developed in the performance of work conducted under this SOW will remain the sole property of the Government. The Contractor may be required to use materials developed under one task order in another task order without additional compensation. The Contractor agrees not to assert any rights and not to establish any claims with respect thereto, and hereby agrees to furnish and provide access to all retained materials on the request of the Contracting Officer.

Site Access. All real estate rights-of-entry that are necessary for the proper conduct of the specified work will be acquired by the Pittsburgh District on behalf of the Contractor. The Contractor will not separately obtain any real estate rights on behalf of the Federal Government to conduct this work. A list of properties and status of the rights-of-entry are in Appendix A. For sites within the Ohio Islands National Wildlife Refuge (Phyllis and Georgetown Islands, Sites 15-18), a Special Use Permit is anticipated to cover the activities described in the Scope.

Inspection. The performance of the Contractor and quality of the work delivered, including services rendered and the documentation in support thereof, shall meet generally accepted professional standards. They shall be subject to the inspection, review, and acceptance by the District. The CO or his representative may at all reasonable times inspect or otherwise evaluate the work being performed hereunder and the premises in which it is being performed. If the District performs any inspection or evaluation on the premises of the Contractor, the Contractor will provide all reasonable facilities and assistance for the safety and convenience of the District representatives in the performance of their duties. All inspections and evaluations will be performed in such a manner as will not unduly delay the work.



#### 4. SCHEDULE AND PAYMENT

The following schedule is to be followed after Receipt of Task Order:

Working Days after Receipt of Task Order	Task
16	Participate in a site visit with the USACE
5	Complete and submit a draft Quality Control Plan and Task Order Schedule (Task 6.a.)
15	Complete and submit a final Quality Control Plan and Task Order schedule (Task 6.a.)
43	Complete and submit 95% Phase I Environmental Site Assessment Report (Task 6.b.)
55	Corps conducts and completes review of 95% Phase I Environmental Site Assessment Report.
63	Complete the incorporation of 95% Corps comments into Phase I report. Complete the Phase I ESA Report based on the findings of the investigation; state if a Phase II Site Investigation is recommended or not recommended. If appropriate, complete formulation of a sampling program for a Phase II site investigation. Submit copies of the report. (Task 6.b.)
65	Complete and submit initial draft ecosystem restoration appendix (Task 6.c.)
75	Complete and submit draft cultural resource report (Task 6.d.)
80	Corps conducts and completes review of NEPA EA
90	Corps conducts and completes review of cultural resource report
90	Final Draft Ecosystem Restoration Appendix (Task 6.c.)
95	Final cultural resource report due (Task 6.d.)

Note: The Phase I Environmental Site Assessment Report is scheduled to be completed before the ER Appendix and cultural resource reports. This will allow for the findings of the Phase I ESA to be incorporated into these other reports

Payment. Progress and final payments will be made in accordance with provisions of the basic contract.

TABLE 1

(tasks required does not match AE tasks discussed in SOW, this lists other data sources that are being sought, some of which would be performed under this scope of work)

Upper Ohio Feasibility Study Ecosystem Restoration Sites				
Site	Pool	≈ River Mile (s)	Project Type	Tasks Required
1, Brunot Island Floodplain Restoration (FR)	Emsworth	1.5 - 2.9	VP Wetlands, invasive removal, native plantings, etc.	Cultural Resources (CR), Vegetation Survey (Veg), ESA, Utility Location (Utl)
2, Sauger Spawning Habitat Enhancement (SS), d/s of Brunot Island	Emsworth	3	Contouring and Substrate Enhancement	Substrate Data, Water Quality, Velocity
4, Davis Island FR	Emsworth	4.5 - 5.2	VP Wetlands, invasive removal, native plantings, etc.	Cultural Resources (CR), Vegetation Survey (Veg), ESA, Utility Location (Utl)
5, Davis Island Foreshore Dike, LB of Back Channel	Emsworth	4.5 - 5.2	Dike built parallel to bank, creating aquatic habitat behind dike	Velocity, Substrate, CR at Tie-ins
6, SS, u/s of Neville Island	Emsworth	3.9 - 5	Contouring and Substrate Enhancement	Substrate Data, Water Quality, Velocity
7, Neville Island Foreshore Dike, LB of Back Channel	Dashields	8.8 - 9	Dike built parallel to bank, creating aquatic habitat behind dike	Velocity, Substrate, CR at Tie-ins
9, SS, d/s of Dasheilds Dam	Montgomery	14.5	Contouring and Substrate Enhancement	Substrate Data, Water Quality, Velocity
10, FD RB	Montgomery	17.6 - 17.9	Dike built parallel to bank, creating aquatic habitat behind dike	Velocity, Substrate, CR at Tie-ins
11, Gravel Bar at Mouth of Beaver Creek	Montgomery	25.5	Contouring and Substrate Enhancement	Substrate Data, Water Quality, Velocity
12, Foreshore Dike, LB	Montgomery	27.2 - 27.9	Dike built parallel to bank, creating aquatic habitat behind dike	Velocity, Substrate, CR at Tie-ins
14, Montgomery Slough	Montgomery	31 - 31.9	VP Wetlands, invasive removal, native plantings, suction dredging	Cultural Resources (CR), Vegetation Survey (Veg), ESA, Utility Location (Utl)
15, FR, Phyllis Island	New Cumberland	35 - 35.7	VP Wetlands, invasive removal, native plantings, etc.	Cultural Resources (CR), Vegetation Survey (Veg), ESA, Utility Location (Utl)
16, FD/Ring Dike, Phyllis Island	New Cumberland	35 - 35.7	Dike built parallel to bank, creating aquatic habitat behind dike	Velocity, Substrate, CR at Tie-ins
17, FR, Georgetown Island	New Cumberland	37.5 - 37.8	VP Wetlands, invasive removal, native plantings, etc.	Cultural Resources (CR), Vegetation Survey (Veg), ESA, Utility Location (Utl)
18, Fd/Ring Dike, Georgetown Island	New Cumberland	37.5 - 37.8	Dike built parallel to bank, creating aquatic habitat behind dike	Velocity, Substrate, CR at Tie-ins
19, Gravel Bar Enhancement, RB	Dasheilds	12.9 - 13.15	Contouring and Substrate Enhancement	Substrate Data, Water Quality, Velocity

## APPENDIX B

MAPS OF SITES  
(to be provided via FTP site)

**APPENDIX C**  
**PASS Site Form – Site 36Bv9 (revised)**



# PENNSYLVANIA ARCHAEOLOGICAL SITE SURVEY

PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

## Identification and Location

SITE NAME Industry SITE NUMBER 36BV0009 UPDATE? ☒ Y / ☐ N  
 PUBLISHED REFERENCES (Including compliance reports.) Phase I Cultural Resources Assessment, Upper Ohio Navigational  
Study Ecosystem Restoration, Allegheny and Beaver Counties, Pennsylvania ER# 1997-1617-042  
 COUNTY Beaver TWP. Industry NEAREST TOWN Ohioview

## Site Characteristics

SITE AREA (approximately) 350,000 SQUARE METERS BASIS: ☐ COMPUTED ON THE GROUND OR ☒ COMPUTED ON MAP

STRATIFIED? ☒ UNKNOWN ☐ NO  
☐ YES : ☐ TOP STRATUM VISIBLE OR ☐ BURIED UNDER STERILE

SITE DISCOVERY METHOD: (check primary one only) ☒ Previously Recorded (update)  

<input type="checkbox"/> Unknown	<input type="checkbox"/> Auger probing
<input type="checkbox"/> Collector interview	<input type="checkbox"/> Shovel testing
<input type="checkbox"/> Collector interview with field check	<input type="checkbox"/> Systematic test units
<input type="checkbox"/> Non-systematic surface survey	<input type="checkbox"/> Extensive excavation
<input type="checkbox"/> Systematic surface survey	
<input type="checkbox"/> Systematic shovel testing	
<input type="checkbox"/> Remote sensing	

POTENTIAL FOR ORGANIC PRESERVATION: (check one)  
☒ Unknown  
☐ None  
☐ Low potential for organic preservation  
☐ Conditions favorable for organic preservation, none documented  
☐ Organic material recovered, unknown quality of preservation  
☐ Organic material recovered, poor quality of preservation  
☐ Organic material recovered, good quality of preservation

### SITE TYPE:

#### Prehistoric

- ☐ Unknown function surface scatter less than 20m radius
- ☒ Open habitation, prehistoric
- ☐ Rockshelter/Cave
- ☐ Quarry
- ☐ Lithic Reduction
- ☐ Village (including historic Indian)
- ☐ Shell Midden
- ☐ Earthwork
- ☐ Petroglyph/Pictograph
- ☐ Burial Mound
- ☐ Cemetery
- ☐ Other specialized aboriginal site
- ☐ Isolated flute point locus

- ☐ Isolated find (diagnostic artifact)
- ☐ Paleontological site
- ☐ Path

#### Historic

- ☐ Historic and Prehistoric
- ☐ Domestic Site
- ☐ Military Site
- ☐ Industrial Site
- ☐ Shipwreck Site
- ☐ Commercial Site
- ☐ Religious Site
- ☐ Unknown/other/multiple types
- ☐ Farmstead



### Prehistoric

☐ Unknown Prehistoric

☐ Paleoindian☐ Early ☐ Middle ☐ Late

☐ Archaic

☐ Early ☐ Middle ☐ Late

□ Transitional Tradition

☒ Woodland

☐ Early ☐ Middle ☐ Late

☐ Proto Historic

☐ Unknown Historic

## □ Contact-Historic

□ 1550-1600

□ 1600-1650

□ 1650-1700

□ 1700-1800

☐ 1700-1725    ☐ 1725-1750

☐ 1750-1775    ☐ 1775-1800

□ 1800-1900

□ 1800-1825

□ 1825-1850

□ 1850-1875

□ 1875-1900

□ 1900-

□ 1900-1925

□ 1925-1950

□ 1950-1975

☐ 1975+

☐ Diagnostic lithic artifacts

☒ Ceramic types

## □ Historical Documentation

☐ Radio Carbon Dates (list below)

RADIO CARBON DATES 2470 ± 120

FEATURES? ☒ NONE FOUND ☐ YES (identify below) If count is not known, use a "P" for present.

## Prehistoric

Quantity	Prehistoric Features
	Present, Prehistoric
	Bundle Burials
	Burial Mound
	Burials
	Burned Areas
	Cache Pits
	Circular Houses
	Cremation Burials
	Earthworks

Quantity	Prehistoric Features
	Extended Burials
	Fish Weir
	Flexed Burials
	Hearth/Thermal Feature
	House Pattern
	Longhouses
	Midden Areas
	Ossuary
	Other, Prehistoric

Quantity	Prehistoric Features
	Path
	Petroglyph/Pictograph
	Postmolds
	Quarry Pit
	Semi-Subterranean Structures (e.g. Keyhole Structures)
	Shell Heap
	Stockade
	Storage Pits/Trash Pits

## Historic

Quantity	Historic Features
	Present, Historic
	Burial
	Canal Bed
	Canal Lock
	Canal Tunnel
	Cellar
	Cemetery

Quantity	Historic Features
	Cistern
	Dam
	Ditch
	Fenceline
	Flower Garden/Bed
	Fortification
	Foundation

Quantity	Historic Features
	Ice House
	Iron Furnace
	Kiln
	Midden
	Millrace
	Monument/Boundary Marker

Quantity	Historic Features
	Oil Well
	Other, Historic _____
	Oven
	Pipeline
	Pit
	Posthole/Postmold
	Privy

Quantity	Historic Features
	Quarry/Mine
	Railroad
	Road
	Root Cellar
	Shipwreck
	Springhouse/Springbox
	Standing Building or

Quantity	Historic Features
	Structure
	Still
	Vat
	Walk/Path
	Wall
	Water Well
	Wharf

## Artifacts (Complete inventories may be attached, but please complete the summaries below)

### ARTIFACT DATA RECOVERY METHOD:

- |   |   |
|---|---|
| <input type="checkbox"/> Non-provenienced   | <input checked="" type="checkbox"/> Controlled excavation                                     |
| <input type="checkbox"/> Surface collection not representative of all artifacts   | <input type="checkbox"/> Representative sample of all artifacts (tools and/or debitage, etc.) |
| <input type="checkbox"/> Non-controlled excavation (i.e. artifact location not mapped and/or not all artifacts collected) | <input type="checkbox"/> Representative sample of tools only                                  |
| <input type="checkbox"/> Controlled surface collection  | <input type="checkbox"/> Estimate based on surface collections and/or excavation              |
|   | <input type="checkbox"/> Estimate based on informant interview                                |

### LITHIC MATERIALS FOUND ON SITE:

Quantity	Material
	Argillite
	Chalcedony
1	Chert/Flint
	Crystal Quartz
	Diabase
	Diorite
	English Flint
	French Flint
	Granite

Quantity	Material
	Hematite
	Hornfels
	Ironstone
	Jasper
	Limestone/Dolomite
	Metabasalt/Greenstone
	Metasandstone
	Onondaga Chert
	Quartz

Quantity	Material
	Quartzite
	Rhyolite (Metarhyolite)
2	Sandstone
	Shale
	Siltstone
	Slate
	Steatite
	Vanport Chert (Flint Ridge)
	Unidentified

ARTIFACT CATEGORIES (Use the comments section to list any artifacts not categorize in these tables. Include either exact quantities or relative as follows:

B	Less than 25
C	25 - 50
D	51 - 100

E	101 - 200
F	201 - 400
G	401 - 800

H	801 or More
I	Present, Quantity Unknown

J	Present, Common
---	-----------------

Prehistoric (Include quantity by material type if appropriate, using the LITHIC list above. Examples:

D	Stone Debitage	52 rhyolite / 26 chert
2	Grooved Axes	sandstone

Quantity	Prehistoric Artifact Types	Material Type
	Adzes	
	Antler & Bone Artifacts	
	Bannerstones	
	Celts	

Quantity	Prehistoric Artifact Types	Material Type
	Ceramics (Prehistoric)	
	Chipped Stone Tools	
	Clay Pipes (Prehistoric)	
	Cordage	

Quantity	Prehistoric Artifact Types	Material Type
	Core	
2	Fire Cracked Rock	Sandstone
	Gorgets/Pendants/Non-Utilitarian Lithics	
	Grooved Axes	
	Ground & Polished Stone Tools	
	Hammerstones	
	Hoes	
	Human Bone	
	Netsinkers	
	Non-Artifactual Bone or Antler	

Quantity	Prehistoric Artifact Types	Material Type
	Non-Artifactual Floral Remains	
	Non-Artifactual Shell	
	Pestles/Grinding/Pitted Stones	
	Shell Artifacts	
	Steatite Bowls/Fragments	
1	Stone Debitage	Monongahela chert
	Stone Pipes	
	Wooden Artifacts	

Historic (Include Quantities by Group as appropriate from table below):

Architectural	Farm Tools	Kitchen (Domestic)
Personal	Arms/Weapons	Industrial Tools

Examples:

D	Glass	50 Architectural / 29 Kitchen
G	Metal	Architectural

Quantity	Historic Artifact	Group
	Brick	
	Buttons	
	Ceramics (Historic)	
	Clay Pipes (Historic)	
	Coins	
	Glass	
	Glass Trade Beads	
	Gunflints	

Quantity	Historic Artifact	Group
	Jewelry	
	Metal	
	Non-diagnostic ceramics	
	Redware	
	Strike-a-Light	
	Textiles	
	Toys	

#### DIAGNOSTIC ARTIFACTS

**Prehistoric Projectile Points** (Include counts by material types, using the LITHIC list above. Examples:

7	Broadspears	5 rhyolite / 2 argillite
2	Lehigh/Snook Kill	chert

Quantity	Prehistoric Point Types	Material
-----	Paleoindian Points	-----
	Pre-Clovis	
	Clovis	
	Mid-Paleo (Folsom)	
	Late Paleo (Plano)	
	Hardaway-Dalton	

Quantity	Prehistoric Point Types	Material
	Fluted Point	
-----	Early Archaic Points	-----
	Palmer	
	Kirk Corner-notched	
	St. Charles	
	Thebes	

Quantity	Prehistoric Point Types	Material
	Charleston	
-----	Middle Archaic Points	-----
	Bifurcate Points	
	Middle Archaic Notched/Stemmed Points	
	MacCorkle	
	Saint Albans	
	LeCroy	
	Otter Creek	
	Kanawha	
	Kirk Stemmed	
-----	Late Archaic Points	-----
	Piedmont Tradition	
	Laurentian Tradition	
	Steubenville	
-----	Transitional Tradition	-----
	Koens Crispins/Savannah River	
	Broadspears	

Quantity	Prehistoric Point Types	Material
	Lehigh/Snook Kill	
	Perkiomen	
	Susquehanna	
-----	Early Woodland Points	-----
	Adena (Stemmed)	
	Meadowood	
	Helgramite	
	Orient	
-----	Middle Woodland Points	-----
	Raccoon Notched	
	Snyders	
	Basal Notched	
	Jacks Reef	
	Fox Creek	
-----	Late Woodland Points	-----
	Triangles (Late Woodland)	
-----	Proto Historic Points	-----
	Triangles (Proto Historic)	

**Prehistoric Ceramic Types** (Include counts by temper types - if not implied in name - using the LITHIC list above. Additional options include “grit”, “grog” or “shell.”.)

Quantity	Prehistoric Ceramics	Temper
-----	Early Woodland Ceramics	-----
	Accokeek Ware	
	Adena Plain	
	Grit Tempered Flat Bottom	
	Half-Moon Cordmarked	
	Interior-Exterior Cordmarked Small Temper-Conical/Globular	
	Marcy Creek	
	Steatite Tempered	
	Vinette I (Interior-Exterior Cordmarked Large Temper-Conical/Globular)	
-----	Middle Woodland/Middle to Late Woodland Ohio Valley Ceramics	-----
	Abott Zoned	
	Grit Tempered Exterior Cordmarked-Conical/Globular	
	Grit Tempered Net Impressed-Conical/Globular	
	Point Peninsula Series	
	Shell Tempered Net Impressed-Conical/Globular	
	Watson Cord Marked	

Quantity	Prehistoric Ceramics	Temper
-----	Late Woodland Ceramics	-----
	Blue Rock Valanced	
	Chance Series	
	Chautauqua Cordmarked	
	Clemsons Island/Princess Point Series	
	Early Ontario Iroquois	
	Erie Series	
	Funk Incised	
	Keyser Cordmarked	
	Lancaster Incised	
	Mahoning Cord Marked	
	McFate Incised	
	McFate/Quiggle Undifferentiated	
	Meade Island Series	
	Minguannan Series	
	Monongahela (Undifferentiated)	
	Monongahela Cordmarked-Late Woodland	
	Monongahela Incised	
	Monongahela Plain	
	Monongahela Somerset	

Quantity	Prehistoric Ceramics	Temper
	Phase	
	Oak Hill Series	
	Overpeck	
	Owasco Series	
	Page Cordmarked	
	Potomac Creek Cord Impressed	
	Proto-Susquehannock	
	Quiggle Incised	
	Richmond Incised	
	Schultz Incised	
	Shenks Ferry (Undifferentiated)	

Quantity	Prehistoric Ceramics	Temper
	Shenks Ferry Cordmarked	
	Shenks Ferry Incised (Blue Rock Phase)	
	Shenks Ferry Incised (Stewart Phase)	
	Shepard Cordmarked	
	Strickler Cordmarked	
	Susquehannock (Undifferentiated)	
	Townsend	
	Tribal Series	
	Washington Boro Incised	
	Whittlesey	
	Wyoming Valley Series	

### Historic Ceramics

Quantity	Historic Ceramics
	American Stoneware (Blue and Gray)
	Basalt
	Chinese Porcelain
	Cream-Colored Ware
	Creamware
	Dry-Bodied (Engine Turned)
	English Brown Stoneware

Quantity	Historic Ceramics
	English Porcelain
	Fulham
	Ironstone
	Jackfield
	Nottingham
	Pearlware (All Decoration Types)
	Rhenish
	Rockingham

Quantity	Historic Ceramics
	Scratch Blue/Brown Salt-Glaze Stoneware
	Tin-Glazed Earthenware
	Whieldon
	White Salt-Glaze Stoneware
	White Ware (Transitional)
	Yellowware

### Physical Data and Site Condition

Instructions available. Please fill out as much as is known, especially those items that are measured or observed on site.

On site SOIL ASSOCIATION Pope silt loam SOIL MAPPING UNIT Po

Most common other mapped SOIL UNIT(S) within 500 meters Philo silt loam (may list two)

MAP ELEVATION 680 ft SLOPE PERCENTAGE 0 SLOPE DIRECTION South

SLOPE BASIS ☐ MEASURED ON SITE ☒ ESTIMATED FROM SOIL SURVEY OR MAP

BEDROCK Pcc-Pennsylvanian Casselman Formation

Most predominant other BEDROCK(S) within 5 km Pa-Pennsylvanian Allegheny Group, Pcg-Pennsylvania Glenshaw Formation

PHYSIOGRAPHIC PROVINCE Pittsburgh Low Plateau Section (21) (If within 10 km of a Physiographic Province boundary, name the neighboring PHYSIOGRAPHIC PROVINCE \_\_\_\_\_)

TOPOGRAPHIC SETTING (check the one that best describes the setting):

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Island                            | <input type="checkbox"/> Lower Hillslope                       | <input type="checkbox"/> Hill/Ridge Toe |
| <input type="checkbox"/> Beach                             | <input type="checkbox"/> Middle Hillslope                      | <input type="checkbox"/> Upland Flat    |
| <input checked="" type="checkbox"/> Floodplain             | <input type="checkbox"/> Upper Hillslope                       | <input type="checkbox"/> Hilltop        |
| <input type="checkbox"/> Rise in Floodplain                | <input type="checkbox"/> Stream Bench (along low order stream) | <input type="checkbox"/> Ridge Top      |
| <input type="checkbox"/> Terrace (Pleistocene along river) |  | <input type="checkbox"/> Saddle         |

IMMEDIATE VEGETATION Woods PERCENTAGE OF SITE STILL INTACT Unknown

PRIMARY DISTURBANCE Infilling, heavy equipment POSSIBILITY OF DESTRUCTION Unknown

**Water Drainage Area Information** Instructions available. Please fill out as much as is known, especially those items that are measured or observed on site. Distance to water is particularly critical.

SUBBASIN Ohio River WATERSHED B MAJOR STREAM Ohio River MINOR STREAM \_\_\_\_\_

NEAREST WATER: Distance adjacent Elevation 680ft Direction South Order 9 Type Perennial Stream

2<sup>ND</sup> NEAREST WATER: Distance 1,181 ft / 360 m Elevation 680ft Direction Northeast Order 1 Type Perennial Stream

NEAREST PERENNIAL STREAM CONFLUENCE:

Distance 1,181 ft / 360 m Elevation 680ft Direction Northeast Order below confluence 9

RELATIONSHIP OF FIRST AND SECOND WATER (check one)

- ☐ Do not represent a stream confluence.
- ☐ Site is located upstream from the confluence and between the 2 water sources.
- ☐ Site is located upstream from the confluence, but not between the 2 water sources.
- ☒ Site is located downstream from the confluence.
- ☐ None of the above apply.

**COMMENTS**

Site 36BV0009 is a previously recorded site which was investigated during the Upper Ohio Navigational Study, Ecosystem Restoration Project in 2009. During this survey, Site 36BV0009 was investigated to determine whether or not portions of the site remain intact and could be impacted by future ecosystem restoration efforts in the area. Information contained in this form is an update to existing site records and does not include artifact information from previous excavations at the site.

A pedestrian reconnaissance and limited use of a soil probe indicated that the vast majority of Site 36BV0009 (particularly portions to the south and west) had been infilled with dredged material and disturbed from the infilling process (hauling heavy loads of sediment through wet soils), while the eastern extent of the site had been scoured and disturbed as a result of road construction and demolition. However, the northwestern portion of the site (upland shrub and riparian areas), between the railroad tracks and inlet, appeared to have intact soils, which had not been infilled as with other portions of the landform.

Based on the results of the pedestrian reconnaissance, seven judgmentally placed STPs in two different portions of SA 14. Two STPs (J1 and J2), placed in the southern peninsula area, fell within fill deposits. The soil stratigraphy in this area revealed a dark brown (10YR 3/3) sandy loam excavated to a depth of 90 cm without reaching a change in soil stratigraphy. No artifacts were recovered from excavations in this area. Judgmentally place STPs excavated in the northwestern portion of SA 14, revealed intact soils including a buried A (Ab) horizon.

Excavations confirmed that portions of Site 36BV0009, a multicomponent site spanning the Early through Late Woodland periods, remain intact within the northwestern portion of the SA 14. Shovel testing at the site consisted of one positive STP and four radial STPs excavated at a regular 5-meter (15-foot) intervals to the east and west of the initial, positive STP (see Figure 6). STP J3 produced three temporally non-diagnostic artifacts: one piece of local Monongahela chert debitage and two pieces of sandstone fire cracked rock (FCR). Four radial STPs were excavated to the east and west of STP J3, none of which resulted in the recovery of artifacts. Further STPs were not excavated to the north due to the presence of the railroad bed or to the south due to the presence of waterlogged soils.

Two typical soil profiles were encountered during excavation in this area. To the east, excavations demonstrated an A-B soil horizon sequence consisting of a dark brown (10YR 3/3) silt loam A horizon to an average depth of 31 cm overlying a yellowish brown (10YR 5/6) silt loam B horizon excavated to an average depth of 42 cm. To the west, excavation of STPs J3, R3 and R4 revealed a dark brown (10YR 3/3) silt loam A horizon to an average depth of 31 cm underlain by a very dark grayish brown (10YR 2/2) silt loam buried A (Ab) horizon to an average depth of 41 cm. This Ab horizon was underlain by the same yellowish brown (10YR 5/6) silt loam subsoil encountered in the eastern STPs (see Figure 32). Given the recovery of artifacts from a buried A horizon at the northern extent of SA 14/Site 36BV0009, it is possible that intact cultural features associated with the site are present within this area.

**ATTACH PHOTOGRAPHS OR DRAWINGS OF DIAGNOSTIC ARTIFACTS WITH SCALE.  
IDENTIFY LITHIC MATERIAL TO ARTIFACTS USING DESCRIPTION OR KEY.**



8



**Overview of Cleared, Disturbed Eastern Portion of Site 36BV0009. View East.**

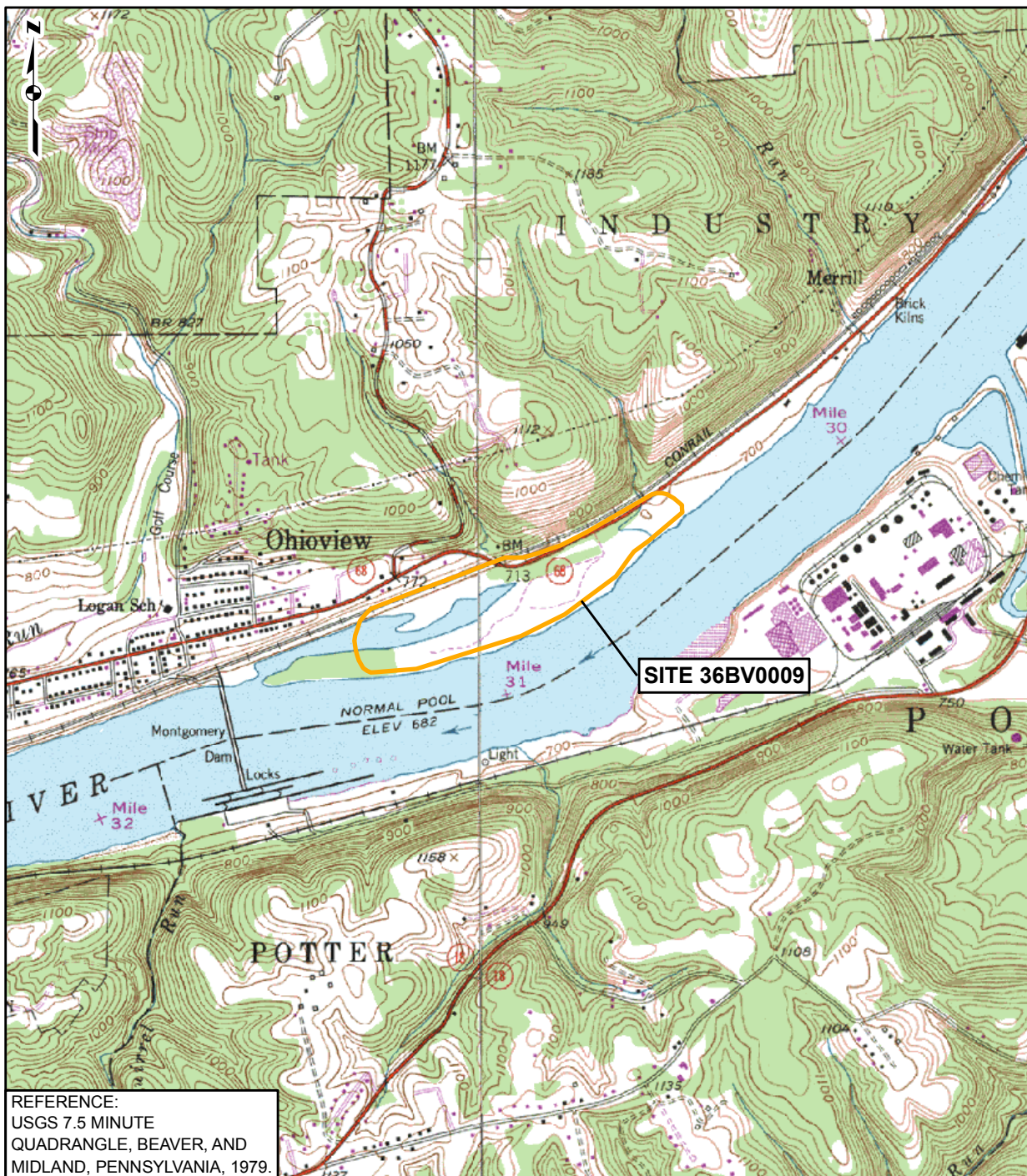


**Uneven Infilled Southern Portion of Site 36BV0009 Showing Non-native Vegetation. View North.**



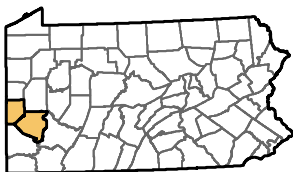
**Overview of Hummocky, Disturbed Terrain at Site 36BV0009. View East.**





REFERENCE:  
USGS 7.5 MINUTE  
QUADRANGLE, BEAVER, AND  
MIDLAND, PENNSYLVANIA, 1979.

#### PROJECT LOCATION



ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

#### LEGEND

 SITE BOUNDARY

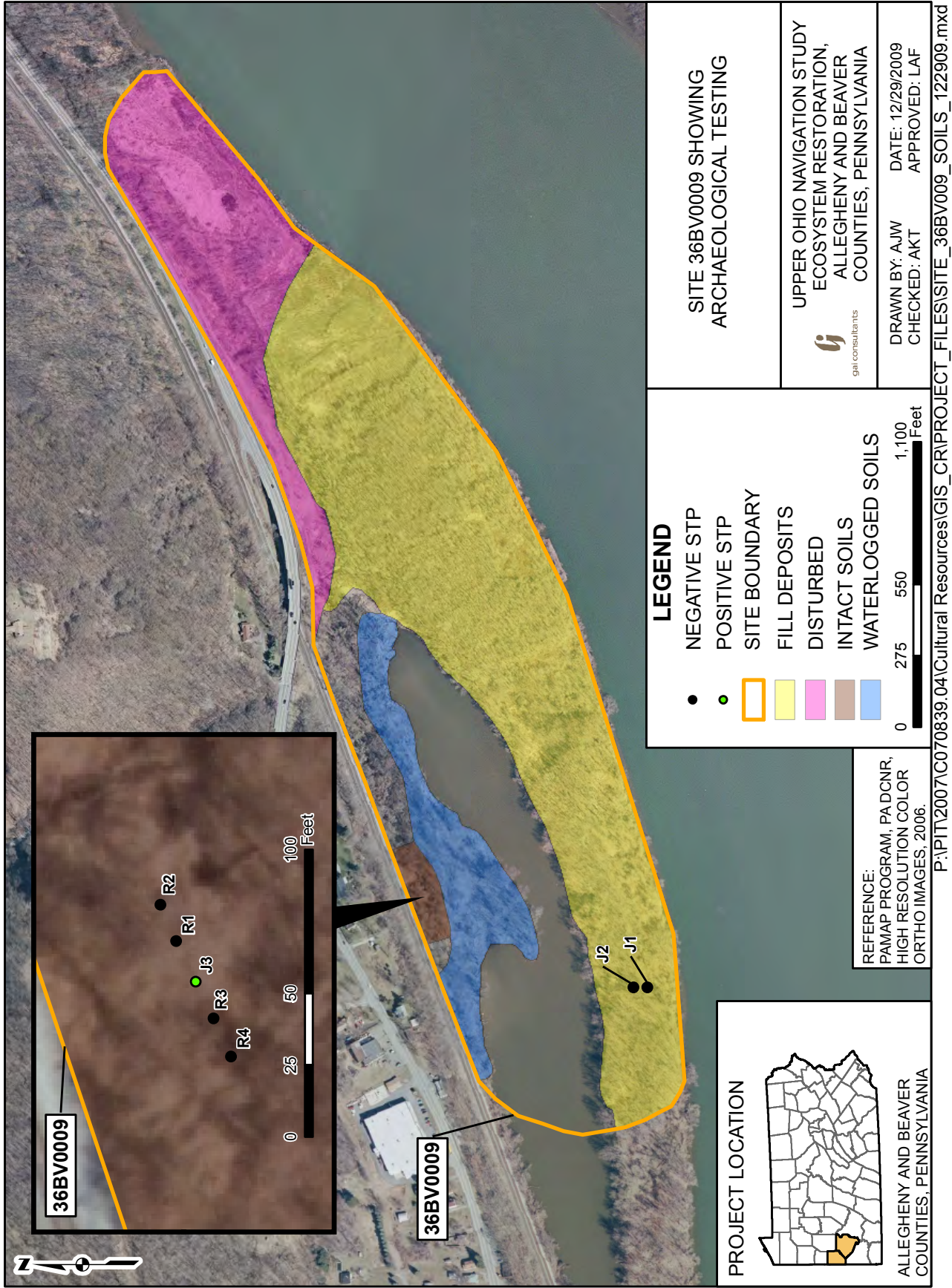
0 1,000 2,000 4,000 Feet

LOCATION OF SITE 36BV0009

UPPER OHIO NAVIGATION STUDY  
ECOSYSTEM RESTORATION,  
ALLEGHENY AND BEAVER  
COUNTIES, PENNSYLVANIA

DRAWN BY: AJW DATE: 12/29/2009  
CHECKED: AKT APPROVED: LAF





**36BV0009 Lithic Catalog**

Fs	Area	North	East	Slp	Tu	Trench	Feature	Strat	Horizon	Lev	Elev	Count	Weight	Material	Class	Type	Lgth	With	Thick	Point Type	Comments
1	NW			J3				2	A		0-30	2	14.36	Sandstone	Fire Cracked Rock						
1	NW			J3				2	A		0-30	1	0.51		Debitage	Flake Fragments					
													3	Total Artifact Count							





## **APPENDIX D**

### **Artifact Catalog**



**36BV0009 Lithic Catalog**

Fs	Area	North	East	Slp	Tu	Trench	Feature	Strat	Horizon	Lev	Elev	Count	Weight	Material	Class	Type	Lgth	With	Thick	Point Type	Comments
1	NW			J3				2	A		0-30	2	14.36	Sandstone	Fire Cracked Rock						
1	NW			J3				2	A		0-30	1	0.51		Debitage	Flake Fragments					
													3	Total Artifact Count							



**APPENDIX E**  
**GAI Project Personnel (Resumes)**





# Lori A. Frye, M.A., RPA

*Lead Archaeologist*

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## Education

1976 B.A. University of Pittsburgh, Anthropology Department, emphasis Archaeology  
1982 M.A. Western Kentucky University, Folk Studies Department, emphasis Historic Preservation  
1992 M.A. Arizona State University, Anthropology Department, emphasis Archaeology

## Areas of Specialization

Historic archaeology, oral history interviews, prehistoric and historic ceramic analysis, cultural resource management, Eastern Woodlands archaeology

## Historical Archaeology Teaching Experience

Adjunct Faculty, Mt. St. Mary's College, History Department, Emmittsburg, Maryland  
Fall 1999 Industrial Archaeology  
Winter 2000 Industrial Archaeology Lab  
Fall 2001 Historical Archaeology

## Project Manager/Principal Investigator

### 2007

- Phase III Data Recovery Excavations at Site 18Cv151 Calvert County, Maryland, Cove Point Expansion Project. Report prepared for Dominion Transmission, Inc., Clarksburg, West Virginia.
- Fort Ethan Allen Cultural Landscape Documentation Report, Arlington, Virginia. Client: Arlington Heritage Alliance, Arlington, Virginia.
- Archaeological Data Recovery at Nuttallburg Mine Conveyor, New River Gorge National River, Fayette County, West Virginia. Client: National Park Service, Denver Service Center, Denver, Colorado.

### 2006

- Phase IB Archaeological Survey for the Proposed Westmoreland Distribution Park II, Parcel B, East Huntingdon and Hempfield Townships, Westmoreland County, Pennsylvania. Client: Westmoreland County Industrial Development Corporation, Greensburg, Pennsylvania.
- Phase I Cultural Resource Survey, Proposed SL 2057/SL 2492 Pipeline Replacement Project, Lagrange and Lagrange Township, Lorain County, Ohio. Client: Columbia Gas Transmission.
- Phase I Archaeological Survey for the Proposed D-36 Pipeline Replacement Project, New Riegel, Seneca County, Ohio. Report prepared for Columbia Gas Transmission, Charleston, West Virginia.

### 2005

- Phase Ib Archaeological Survey, 189-acre Parcel within Proposed Westmoreland Distribution Park, East Huntingdon Township, Westmoreland County, Pennsylvania. Client: Westmoreland County Industrial Development Corporation, Greensburg, Pennsylvania.
- Phase I Archaeological Survey, Westmoreland Technology Park, Phase 2, Lot 19, Hempfield Township, Westmoreland County, Pennsylvania. Client: Westmoreland County Industrial Development Corporation, Greensburg, Pennsylvania.
- Phase I Archaeological Survey, Cove Point Expansion Project, PL-1 Natural Gas Pipeline Replacement Section, Hamilton Township, Franklin County, Pennsylvania. Client: Dominion Transmission, Inc., Clarksburg, West Virginia.
- Phase I Archaeological Survey for Proposed SR-513 Pipeline, Salt Creek Township, Hocking County, Ohio. Client: Columbia Gas Transmission, Charleston, West Virginia.

- Phase IA Cultural Resources Investigation, AEP IGCC Plant Siting Studies, Ohio, West Virginia, and Kentucky. Client: American Electric Power.
- Phase II Cultural Resource Assessment, Site 36Ju117, Petersheim Site, Cove Point Expansion Project, Perulack Compressor Station, Juniata County, Pennsylvania. Client: Dominion Transmission, Inc., Clarksburg, West Virginia.
- Phase I Cultural Resource Survey, Proposed SL 2057/SL 2492 Pipeline Replacement Project, Lagrange and Lagrange Township, Lorain County, Ohio. Client: Columbia Gas Transmission in 2006.
- Phase I Cultural Resource Survey, Proposed E-460 Pipeline Replacement Project, Starr Township, Hocking County, Ohio. Client: Columbia Gas Transmission in 2005.
- Phase IA Cultural Resources Investigation, AEP IGCC Plant Siting Studies, Ohio, West Virginia, and Kentucky. Client: American Electric Power in 2005
- Phase IB Archaeological Investigation, Proposed IGCC Mountaineer Plant Site, Mason County, West Virginia. Client: American Electric Power in 2005
- Phase I Survey E-2 Pipeline Replacement, Starr Township, Hocking County, Ohio. Client: Columbia Gas Transmission in 2005.
- Phase I Survey for SR 513 Pipeline Replacement, Salt Creek Township, Hocking County, Ohio. Client: Columbia Gas Transmission in 2005.
- Phase I Survey, Westmoreland Technology Park, Phase 2, Lot 19, Hempfield Township, Westmoreland County, PA. Client: Westmoreland County Industrial Development Corporation, Greensburg, Pennsylvania in 2005.
- Phase I and Phase II Investigations at Site 36Ju117, Cove Point Expansion Project, Perulack Compressor Station, Juniata County, Pennsylvania. Client: Dominion Transmission, Inc., Clarksburg, West Virginia in 2005.

*Principal Investigator (Report Author)*

- Phase III Archaeological Investigations for the Proposed Norfolk Southern Railway Company's Saltsburg to Clarksburg Rail Line, Armstrong Township, Indiana County, Pennsylvania: The Reed Site. Client: Norfolk Southern Railway Company in 2005.

## 2004

- Phase I Survey, Grading Area and Haul Road Project. Client: Westmoreland County Industrial Development Corporation, Westmoreland County, PA.
- Phase I Survey, BBH Site Location. Client: Kanawha Eagle Coal, Cabin Creek District, Kanawha County, West Virginia
- Phase IA Survey, Westmoreland Distribution Park Phase 2. Client: Westmoreland County Industrial Development Corporation, Westmoreland County, PA
- Phase I Survey, Cove Point Expansion Project, 40 Mile Transmission Line. Client: Dominion Transmission, Inc., St. Mary's, Charles, and Prince George Counties, Maryland.
- Phase I Survey, Pipeline Corridor Project. Client: Great Lakes Energy Partners Pipeline Project, Oakland and Plum Townships, Venango Country, Pennsylvania.
- Phase I Survey, Pipeline Corridor Project. Client: Great Lakes Energy Partners Pipeline Project Cornplanter Township, Venango Country, Pennsylvania.
- Phase I Survey, Sewerline Survey Project. Client: Senate Engineering, Mahoning Township, Armstrong County, Pennsylvania.
- Phase I Survey, Sewerline Survey Project. Client: Dana R. Boob Surveying and Engineering, Brockway Area Sewer Authority Project Horton Township, Snyder Township, and Brockway Borough, Elk and Jefferson County, Pennsylvania
- Phase I Survey, Sewer Facilities Project. Client: Hill Engineering, Inc., Borough of Ellwood City, Wayne Township, Lawrence County, Pennsylvania.

- Phase I Survey, Sewerline Survey Project. Client: Stiffler, McGraw and Associates, Inc., Frankstown Township Blair County, Pennsylvania.
- Phase I Survey, Trails End Re-Entry Project. Client: USDA, Allegheny National Forest, Wetmore and Hamlin Townships, McKean County, Pennsylvania.
- Phase I Archaeological Investigations and Historical Structure Investigations. Client: Bentworth School District, Somerset Township, Washington County, Pennsylvania.
- Phase I Survey, Allegheny Portage Trace Trail Corridor (6-10). Client: National Park Service, Allegheny Portage National Historic Site, Gallitzin, Pennsylvania

### **Project Manager/Principal Investigator, 1994-2003 Examples**

- Report on Archaeological Excavations, Wager Farmstead Site 36Mg307, Pennsylvania Act 70 Project, Pennsylvania Bureau for Historic Preservation, Montgomery County, PA.
- Effects Report and Recommended Data Recovery Plan, Site 36Al480, Locks and Dams 2, 3, and 4, Monongahela River Project, Leedsdale, Allegheny County, Pennsylvania, US Army Corps of Engineers, Pittsburgh District.
- Reassessment of Archaeological Sites, Falls Lake Reservoir Cultural Resources Planning Project, US Army Corps of Engineers, Wilmington District, Durham, Granville, and Wake Counties, NC. .
- Archaeological Survey and Excavation at Site 46Jf245, a Civil War encampment, Cranes Meadow Housing Development Project, Cranes Meadow Limited Partnership, Jefferson County, WV.
- Phase I Survey, Furnace Town Historic Site Visitor's Center Project, Furnace Town Foundation, Inc., Worcester County, MD. Determination of Eligibility Assessments, Bluestone Dam and County Route 23, Horizon Research Consultants, Summers County, WV
- Phase I/II Archaeological Investigations at Fenby Farm Quarry and Lime Kiln Site (18Cr163/CARR 260), Westminster, Carroll County, MD.
- Phase I Intensive Survey, Proposed Western Elementary School #3, Howard County Public School System, Howard County, MD.
- Phase I Survey, New Design Bridge and Road Modification Project, Frederick County Department of Public Works, Bureau of Highways and Transportation, Frederick County, Maryland.
- Phase I Survey Juniata Woolen Mill, Bedford County. An archaeological Reconnaissance Survey north of the Juniata Woolen Mill, Snake Spring Township for Juniata Woolen Mill, Inc.
- Phase I Survey, Lower Georges Creek, Grays Landing Lock and Dam Project, Woolpert Consultants, Springhill and Nicholson Townships, Fayette County, PA.
- Phase II/III Excavations of Gallatin Sawmill site (36Fa428), Grays Landing Lock and Dam Project, Woolpert Consultants, Fayette County, PA.
- Phase II Assessment Eight Historical Sites, Eastern Portion of Segment II of the Proposed U.S. 30 Relocation Project, Dansard, Grohnke, and Long, Ltd., Hancock and Wyandot Counties, Ohio.
- Phase II Assessment of the Tile House Site, Eastern Portion of Segment I of the Proposed U.S. 30 Relocation Project, Dansard, Grohnke, and Long, Ltd., Hancock County, Ohio.
- Phase III Excavations of Young Site 33At668, Proposed Bridge Crossing of Hamley Run on S.R. 691 Project, Ohio Department of Transportation, Athens County, OH.
- Phase I Survey, Juniata Woolen Mill parking lot Project, Juniata Woolen Mill, Inc., Snake Spring Township, Bedford County, PA.
- Phase I Survey, Proposed Riverview Terrace Property Development Project, Cuyahoga Metropolitan Housing Authority, Cleveland, Cuyahoga County, Ohio
- Phase I Survey, Proposed Relocation of U.S. Route 30 Project, McCoy and Associates, Inc., Crawford and Richland Counties, Ohio.
- Phase I Survey, Mill Creek Mall Expansion Project, The Cafaro Company, Erie County, Pennsylvania.
- Phase I Inventory Survey, Naval Submarine Base Cultural Resources Planning Project, Naval Facilities Engineering Command, San Diego, California.

### **Publications:**

- 1995 A Cultural Resource Survey and Geomorphological Investigation of Loci 3, 4, 5, and 6 along Lower Georges Creek in Springhill and Nicholson Townships, Fayette County, Pennsylvania. Co-authored with Ronald C. Carlisle and J. Steven Kite. US Army Corps of Engineers, Pittsburgh District.
- 1995 Archaeological Assessment and Data Recovery of the Gallatin Sawmill at 36 Fa 428: The Eberhart Grist Mill, Dam, and Gallatin Sawmill. Co-authored with Ronald C. Carlisle, J. Steven Kite, Paula Zitzler, and Eric Davis. US Army Corps of Engineers, Pittsburgh District.
- 1992 Phase I Historic Properties Investigations, Youghiogheny River Lake Project, Fayette and Somerset Counties, Pennsylvania and Garrett County, Maryland. Co-authored with John P. Nass, Jr., John Roger Wright, and Rory Krupp. U S Army Corps of Engineers, Pittsburgh District.
- 1991 Coding System Manual for the East Liverpool, Ohio Urban Archaeology Project. ODOT Archaeological Series, No. 1.
- 1990 1990 Volume: Investigations into southeastern Utah Archaic, Phase III Archaeological Investigations of Two Small Sites Located Along U.S. 191, Holy Oak Lane to Blue Hill, San Juan County, Utah. John W. Hohman and John A. Hotop (eds.). Contributor. Studies in Western Archaeology No. 2. Louis Berger, East Orange. Pt. i-xiii, 1-289.
- 1986 Radiocarbon Dating of Archaeological Samples from Maryland. Co-authored with Hettie L. Boyce. Department of Natural Resources, Maryland Geological Survey, Archeological Studies No. 4.

# Alyssa Kay Trimmer

*Archaeologist*

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## Education

M.A., (MPhil) Archaeological Science, 2008, Cambridge University

B.A.. Anthropology, 2003, University of Pittsburgh

## Relevant Training/Courses

Section 106 Essentials Training, 2009

Section 106 Review, 2002

## Registrations

Registered Professional Archaeologist, 2008 - 2010

## Areas of Specialization

Ms. Trimmer worked at GAI as an archaeological technician and lab assistant for 15 months before attending and graduating Cambridge University. Her Masters Thesis is entitled "The Impact of Site Formation Processes and the Preservation of Agricultural Signatures in Three Typical English Soil Types in Thin Section." While attending Cambridge, Alyssa's additional training included geoarchaeology, micromorphology, zooarchaeology, paleobotany, biomolecular archaeology, and GIS.

## Professional Experience

### 2009

- Report Co-Author. Phase Ib Cultural Resources Investigation, Lightburn Extraction Plant, TL-593, TL-594, and TL-595 Project, Lewis County, West Virginia for Dominion Resources Services Inc.
- Report Co-Author. Phase III Archaeological Evaluation of Site 33PE174 for the Rockies Express Pipeline-East (REX-East) Project, Perry County, Ohio for Caprock Environmental Services, LLC.
- Report Author. Interim Management Summary, Phase I Archaeological Investigations, Welton Springs Substation, Potomac-Appalachian Transmission Highline (PATH) Project, Hardy County, West Virginia, for Power Engineers.
- Report Author. Phase I Archaeological Investigation, Cobb Expansion Project, Kanawha County, West Virginia, for Columbia Gas Transmission.
- Report Figures. Phase I Cultural Resources Survey, Kemptown Substation, Potomac-Appalachian Transmission Highline (PATH), Frederick County, Maryland, for Power Engineers.
- Report Author. Phase I Archaeological Survey, Line 1360 Upgrade Project, West Finley and Donegal Townships, Washington County, Pennsylvania, for Columbia Gas Transmission.
- Report Author. Phase I Cultural Resources Survey, Line 1570 Upgrade Project, Washington and Greene Counties, Pennsylvania, for Columbia Gas Transmission.
- Report Author. Supplemental Phase I Archaeological and Geomorphological Survey, Areas II and III Water and Sewer Project, Bedford Township, Bedford County, Pennsylvania, for Bedford Township Municipal Authority and Stiffler, McGraw & Associates, Inc.
- Report Author. Phase I Archaeological Survey, NIJUS003 Pipeline Project, Center and Morris Townships, Greene County, Pennsylvania, for EQT Gathering, Inc.
- Report Co-Author. Phase Ib Archaeological Survey, Rural Valley Pipeline Project, Armstrong, Westmoreland, Elk, and McKean Counties, Pennsylvania, for Dominion Transmission, Inc.
- Report Author. Phase Ib Archaeological Survey, NIJUS001 (MD-146) Pipeline Project, Amwell Township, Washington County, Pennsylvania, for EQT Production Company.
- Report Co-Author. Phase Ib Archaeological Survey, Rural Valley Pipeline Project, Armstrong, Westmoreland, Elk, and McKean Counties, Pennsylvania, for Dominion Transmission, Inc.



- Graphics and Report Contributions. Co-Principal Investigator. Supplemental Phase Ib Archaeological Survey, NIJUS-0002 MD-101 Pipeline Project, Morris Township, Greene County, Pennsylvania, for Equitable Gathering, LLC.
- Report Author. Supplemental Phase Ib Archaeological Survey, NIJUS-0002 MD-101 Pipeline Project, Morris Township, Greene County, Pennsylvania, for Equitable Gathering, LLC.
- Graphics. Phase II Investigations of the Dun Glen Hotel Site for the Fire Suppression System, Fayette County, West Virginia, for National Park Service-NERI.

## 2008

- Report Author / Graphics. Technical Report, Phase I Archaeological Survey, Rural Valley Pipeline Project, Armstrong, Elk, and McKean Counties, Pennsylvania, for Dominion Transmission, Inc.
- Report Author. Phase I Archaeological Survey, Loyalhanna Substation Expansion Project, City of Latrobe, Westmoreland County, Pennsylvania, for Allegheny Power.
- Report Author. Phase Ib Archaeological Survey, MD-101 Pipeline Project, Morris Township, Greene County, Pennsylvania, for Equitable Gathering, LLC.
- Assistant Geomorphologist, Letter Report and Graphics. Phase Ia Cultural Resources Investigations, H-162 Pipeline Replacement, Kanawha and Clay Counties, West Virginia, for Dominion Transmission, Inc.
- Technical Editing. Phase I Archaeological and Architectural Survey, Phase II Archaeological Investigation, Ohio Storage Expansion Project, Crawford and Weaver Storage Fields, Fairfield, Hocking, Ashland, and Holmes Counties, Ohio, for Columbia Gas Transmission.
- Technical Editing. Phase Ib Archaeological Survey, North of Muddlety Complex Surface Mines Project, Nicholas County, West Virginia, for Britton Engineering, Inc.
- Archaeological Technician. Phase Ib Survey for Ohio Storage Expansion Project, Fairfield, Hocking, Ashland, and Holmes Counties, Ohio, for Columbia Gas Transmission.
- Graphics. Management Summary, Phase Ib Cultural Resources Investigation Bell Bend Nuclear Power Plant, Luzerne County, Pennsylvania, for Areva NP, Inc and UniStar Nuclear Development, LLC.
- Graphics. Phase Ib / II Archaeological Investigations, Fairmont to I-79 Gateway Corridor and Interchange, Alternatives A and A1, City of Fairmont, Marion County, West Virginia, for HNTB Corporation and West Virginia Department of Transportation.
- Graphics (Spatial Analysis). Technical Report, Archaeological Data Recovery at the Overby Site (46Wa112), US Route 52 Tolsia Highway Project, Wayne County, West Virginia, for Kimley-Horn & Associates and West Virginia Department of Transportation, Division of Highways.
- Report Author / Graphics. Abbreviated Report, Phase I Archaeological Survey, State Route 3003, Section 450, Tunnelton Bridge Replacement, Conemaugh Township, Indiana County, Pennsylvania, for Pennsylvania Department of Transportation Engineering District 10-0.
- Report Author. Management Summary, Phase I Archaeological Survey NIJUS 0009 Pipeline Project, Greene County, Pennsylvania for Equitable Gathering Company.

## 2006-2007

- Archaeological Technician. Responsibilities to GAI Consultants from May 2006 to September 2007 included cleaning, labeling, and cataloging artifacts, general lab organization; fieldwork including shovel testing, test units, pedestrian survey, and feature excavation; digital manipulation of maps and figures prepared for client reports, writing and editing sections of client reports; and geoarchaeological surveying and assessment of landforms and archaeological potential.
- Archaeological Technician / Geoarchaeological Assistant. Phase Ia Survey for H-162 Pipeline Replacement Project, Kanawha and Clay Counties, West Virginia, for Dominion Transmission, Inc.
- Archaeological Technician. Phase Ib/II Survey for Integrated Gasification Combined Cycle generation facility at Great Bend, Meigs County Ohio, for American Electric Power.
- Archaeological Technician. Phase Ib Survey for Falling Water Development Project, Monongalia County, West Virginia, for Backwater Properties, LLC.

- Archaeological Technician. Archaeological Data Recovery of the Philip's Meadow Site (18Ch654), Charles County Maryland, for Dominion Cove Point, LNG, LP.
- Graphics (3-D Modeling). Fort Ethan Allen Cultural Landscape Documentation Report, Arlington, Virginia. Arlington Heritage Alliance, Arlington, Virginia
- Graphics (Spatial Analysis). Technical Report, Phase III Data Recovery Excavations at Site 18Cv151, Calvert County, Maryland, for Dominion Cove Point, LNG, LP.
- Graphics. Letter Report, Phase Ia Archaeological and Geomorphological Investigation SR 3034, Section 001, South Branch of Blacklick Creek (Beula) Bridge Replacement, Cambria Township, Cambria County, Pennsylvania, for Pennsylvania Department of Transportation.
- Graphics. Phase I Addendum Report II, Big Sandy Pipeline Project, Supplemental Archaeological Survey, Carter, Lawrence, Johnson, and Floyd Counties, Kentucky, for Equitrans.
- Graphics. Phase I Addendum Report III, Big Sandy Pipeline Project, Willard Speedway Staging Area, Carter County, Kentucky, for Equitrans.



PROGRAMMATIC AGREEMENT  
AMONG

THE U.S. ARMY CORPS OF ENGINEERS, PITTSBURGH, HUNTINGTON  
AND LOUISVILLE DISTRICTS,  
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION, AND  
THE STATE HISTORIC PRESERVATION OFFICERS OF PENNSYLVANIA,  
OHIO, WEST VIRGINIA, KENTUCKY, INDIANA, AND ILLINOIS  
REGARDING  
THE MODERNIZATION OF  
THE OHIO RIVER NAVIGATION SYSTEM

WHEREAS, the U.S. Army Corps of Engineers, Pittsburgh, Huntington and Louisville Districts (Corps), propose to modernize the existing Ohio River Navigation System, consisting of Locks and Dams located in Pennsylvania, West Virginia, Ohio, Kentucky, Indiana, and Illinois; and

WHEREAS, the Corps has determined that modernization of the Ohio River Navigation System and concomitant environmental mitigation efforts (Project) may have an effect upon properties included in or eligible for inclusion in the National Register of Historic Places (National Register) and has consulted with the Advisory Council on Historic Preservation (Council) and the State Historic Preservation Officers of Pennsylvania, West Virginia, Ohio, Kentucky, Indiana, and Illinois (SHPOs) pursuant to Section 800.14 of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (NHPA, 16 U.S.C. 470f), and Section 110(f) of the same Act (16 U.S.C. 470h-2(f)); and,

WHEREAS, pursuant to 36 CFR 800.2, the Corps conducted a series of public and agency meetings between July 10, 2001 and August 7, 2001, throughout the project area, designed to give all interested parties an opportunity to comment on the overall Project; and

WHEREAS, the Project shall be defined as those activities undertaken by the Corps that are required to modernize Locks and Dams, including all construction staging areas, all flowage easement acquisitions, all disposal sites, all publicly owned shoreside facilities relocated at Federal expense, and all environmental mitigation; and as defined excludes activities undertaken by the private sector as a consequence of the Project, which may affect historic

properties, the Section 106 obligations of which will be addressed separately through Department of the Army permitting authority under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403), and Section 404 of the Clean Water Act (33 U.S.C. 1344);

WHEREAS, the Corps, in order to facilitate the assessment of Project effects, has prepared a National Register of Historic Places-level contextual report, which has been coordinated through the SHPOs; and

WHEREAS, the Corps, has conducted a historic architectural survey of all extant and former Corps lock and dam facilities along the Ohio River, through consultation with the SHPOs; and has completed the appropriate state inventory forms for agency review. The final report will be completed and distributed by the Winter of 2005/06; and

NOW, THEREFORE, the Corps, the Council and the SHPOs agree that the Project shall be administered in accordance with the following stipulations to satisfy the Corps' Section 106 responsibility for all individual undertakings of the Project.

### **Stipulations**

The Corps shall ensure that the following measures are carried out:

#### **I. Completion of Historic Property Surveys**

A. The Corps shall ensure that historic property surveys will be performed in the Project's area of potential effects as defined in the Council's regulations at 36 CFR Section 800.16(d). The objective of these surveys is to identify both recorded and unrecorded potentially historic properties within the area of potential effects that may be affected by the Project either directly or indirectly, and determine whether they meet the criteria for inclusion to the National Register of Historic Places as specified in the Department of Interior's regulation at 36 CFR Part 60.4.

B. Historic property surveys will be performed in accordance with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation

and other applicable professional standards as described below.

## **II. Identification and Treatment of Archaeological Properties**

### **A. Identification and Evaluation**

1. Phase I archaeological survey will be performed on all lands that will be disturbed by the Project. The surveys will be conducted in a manner consistent with the Secretary of the Interior's Standards and Guidelines for Identification (48 FR 44720-23) and take into account the National Park Service publication The Archaeological Survey: Methods and Uses (1978), and specific state guidelines.

2. All surveys shall be conducted in consultation with the SHPO who has jurisdiction where the surveys will take place. All reports will meet the standards of the appropriate SHPO and shall be submitted to that SHPO for review and comment.

3. Where the Phase I archaeological survey results in the identification of a historic property, but yields insufficient information to properly determine the National Register of Historic Places eligibility for that property, a Phase II archaeological testing program will be developed and coordinated with the appropriate SHPO. The goal of the Phase II testing program will be to glean sufficient information about the property to make an eligibility determination.

4. The Corps, in consultation with the appropriate SHPO and following the Secretary of Interior's Standards for Evaluation, shall apply the National Register Criteria to properties that may be affected by this project. If the Corps and the appropriate SHPO agree that a property is eligible under the criteria, the property shall be considered eligible for the National Register for purposes of this Agreement. If the Corps and the appropriate SHPO agree that the criteria are not met, the property shall be considered not eligible for the National Register for purposes of this Agreement. If there is no agreement between the Corps and the appropriate SHPO on National Register eligibility, or if the Council so requests, prior to the start of any work at the site the Corps shall submit



the property for a formal determination of eligibility from the Keeper of the National Register, National Park Service, whose determination shall be final.

5. For those archaeological properties which the Corps and appropriate SHPO agree are not eligible for the National Register, no further archaeological investigations will be required, and the proposed project may proceed in those areas. If the survey results in the identification of properties that the Corps and the appropriate SHPO determine to be eligible for the National Register, such properties shall be treated in accordance with Stipulation II(B) below.

6. NAGPRA

a. Federal Fee Title Lands.

i. In the event that Native American human remains, associated and unassociated funerary objects, sacred objects, and/or objects of cultural patrimony are encountered during any phase of the project on tribal land, or federal fee title lands, or on lands in which the federal real property interests are virtually equal to fee title, the burial discovery is subject to NAGPRA, Section 3 (Public Law 101-601-Nov.16, 1990) and the Department of the Interior's NAGPRA Regulations (43 CFR Part 10).

ii. The Corps and appropriate federally recognized tribal entity shall notify the appropriate SHPO and the Council of the outcome of tribal consultation and disposition.

iii. The SHPOs and the Council shall be consulted to amend the provisions of this agreement if the NAGPRA tribal consultation and subsequent disposition impairs the Corps' ability to execute this agreement.

b. Non Fee Title Lands

In the event that Native American human remains, associated and unassociated funerary objects, sacred objects, and/or objects of cultural patrimony are encountered during any phase of the project on state, local, or private lands, the burial discovery is subject to state burial laws.

B. Determination of Effect and Treatment

The Corps, in consultation with the appropriate SHPO and the Council, shall determine the effect the Project will have on each listed or eligible archaeological properties and develop a treatment plan for any archaeological properties that will be adversely affected by the Project.

a. Preservation In Place

i. Wherever feasible, preservation in place shall be the preferred treatment. Such properties shall be avoided either through project design changes, use of temporary fencing or barricades, or other measures to protect sites.

ii. The Corps, in consultation with the appropriate SHPO, shall develop and implement a plan for long term protection of archaeological sites avoided and preserved in situ on lands affected by the Project.

iii. The Preservation plan will be submitted to the appropriate SHPO and the Council for 60 days (from receipt of documentation) for review and approval. The parties shall consult to resolve any objections to the preservation plan as proposed prior to implementation. If no response is received from the SHPO or the Council after 60 days (from receipt of documentation), the plan shall be implemented as submitted.

b. Archaeological Data Recovery

i. For those eligible archaeological sites that the Corps, the appropriate SHPO, and the Council agree cannot be avoided, a data recovery plan for the retrieval of significant archaeological information will be developed and implemented.

ii. A data recovery plan that addresses substantive research questions will be developed in consultation with the appropriate SHPO for the recovery of relevant archaeological data. The plan shall be consistent with the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation (48 FR 44734-37) and take into account the Council's publication, Treatment of Archaeological Properties and the appropriate

state publication. It shall specify, at a minimum, the following:

(a). The property, properties, or portions of properties where data recovery is to be carried out;

(b). The research questions to be addressed through the data recovery, with an explanation of their relevance and importance;

(c). The methods to be used, with an explanation of their relevance to the research questions;

(d). The appropriate treatments and methodologies, and consultation procedures to be employed if any materials specific to NAGPRA are encountered;

(e). A proposed schedule for the submission of progress reports to the SHPO.

iii. The data recovery plan shall be submitted to the appropriate SHPO and the Council for 60 days (from receipt of documentation) for review and approval. The parties shall consult to resolve any objections to the data recovery plan as proposed. The data recovery plan shall then be implemented. If no response is received from the SHPO or the Council after 60 days (from receipt of documentation), the plan shall be implemented as submitted.

iv. The data recovery plan will be carried out by or under the direct supervision of an archaeologist(s) who meets, at minimum, the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-9).

v. An adequate program of site security to protect the site from vandalism during data recovery will be developed in consultation with the appropriate SHPO and then implemented.

vi. Curation and Dissemination of Information:

(a). In consultation with the appropriate SHPO, all materials and records resulting from the survey, evaluation, and data recovery conducted for the Project will be curated in accordance with 36 CFR Part 79. The Corps will curate all materials in a repository meeting federal standards within the appropriate state. All

material and records recovered from non-Federally owned land shall be maintained in accordance with 36 CFR Part 79 until their analysis is complete and, if necessary, are returned to their owners.

(b). The Corps shall ensure that all final archaeological reports resulting from actions pursuant to this Agreement will be provided to the SHPOs, the Council, and upon request, to other interested parties. All such reports will be responsive to contemporary standards and to the Department of the Interior's Format Standards for Final Reports of Data Recovery Programs (42 FR 5377-79). Precise locational data will be withheld from the general public or provided under a separate appendix to the reports if the Corps and the appropriate SHPO agree to the data's release.

### **III. Identification and Treatment of Above-Ground Historic Properties**

#### **A. Identification and Evaluation**

1. The Corps, in consultation with the appropriate SHPO, shall ensure that a historical architectural survey will be conducted in those areas affected by the Project but not previously investigated as part of the Ohio River Navigation System. This survey will be conducted by a qualified architectural historian who meets, at minimum, the standards set forth in the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-9).

2. All of the areas surveyed will be clearly identified and the rationale used in eliminating areas from the survey (e.g. because either no above ground facilities will be located in view of extant structures, no flowage easements will be acquired, etc.), will be described. The criteria to be used in eliminating survey areas will be established in consultation with the appropriate SHPOs.

3. Particular attention will be given in the survey to the visual integrity (setting) of identified historic properties, and how the setting may be affected by view of the navigation structures or other Project-related activities.

4. The Corps will ensure that the architectural survey meets the standards of the appropriate SHPO, and is consistent with the recommended approaches in the Secretary

of the Interior's Standards and Guidelines for Identification (48 FR 44720-3) and the Council's and National Park Service's publication Identification of Historic Properties (1988).

5. As necessary to supplement the review of above-ground historic property documentation, the appropriate SHPO may conduct an inspection of National Register-listed or eligible properties. The appropriate SHPO shall report each determination, along with the rationale for their decision.

6. The Corps, in consultation with the appropriate SHPO and following the Secretary of Interior's Standards for Evaluation, shall apply the National Register Criteria to properties that may be affected by this Project. If the Corps and the appropriate SHPO agree that a property is eligible under the criteria, the property shall be considered eligible for the National Register for purposes of this agreement. If the Corps and the appropriate SHPO agree that the criteria are not met, the property shall be considered not eligible for the National Register for purposes of this Agreement. If the Corps and the appropriate SHPO do not agree on eligibility, or if the Council so requests, the Corps shall obtain a determination from the Keeper of the National Register, whose determination shall be final.

#### B. Determination of Effect and Treatment

1. The Corps, in consultation with the appropriate SHPO and the Council, shall determine the effect the Project will have on each Register-listed or eligible historic building, structure, landscape, or archaeological site.

2. The Corps, in consultation with the appropriate SHPO and the Council, shall develop proper treatments for Register-listed and eligible historic buildings, structures, landscapes, and archaeological sites that will be adversely affected by the Project.

a. The preferred alternative is avoidance of effects to historic properties. If, in consultation with the appropriate SHPO and the Council, all parties agree this is not feasible, the Corps will develop and implement plans to minimize or reduce the effect.

b. The Corps shall prepare Memoranda of Agreement (MOA) that detail mitigation plans that are developed in consultation with the appropriate SHPO and the Council. Plans will also be made available for review and comment to interested parties, affected landowners, and appropriate local interest groups. Any such comments shall be made available to the appropriate SHPO and the Council and shall be taken into account by the parties to this agreement. The appropriate SHPO and Council shall have 60 days from receipt of adequate information in which to review and comment on the MOA. If the appropriate SHPO or the Council fails to respond within 60 days, that party shall be deemed to have consented to the matter proposed. The MOA shall contain dispute resolution language that will guide consultation if there is a disagreement over adequacy, appropriateness, or extent of a mitigation plan. If the disagreement cannot be resolved, it will be handled in accordance with Stipulation V. G. below.

#### **IV. Public Outreach And Education**

The Corps, on a case-by-case basis, will consult with the appropriate SHPO regarding the appropriateness and level of effort for a public outreach and education program. This consultation will occur through the development of MOAs for individual undertakings within the overall study reach.

#### **V. Review of this Programmatic Agreement**

A. The terms of this Agreement shall remain in effect through the completion of the project in the year 2060 unless changes have been negotiated and approved as specified below.

B. The signatories to this Agreement shall consult every five years through the life of the project to review implementation of the terms of this Agreement. Prior to the review, a report shall be provided to the signatories detailing how obligations pursuant to this Agreement have been carried out. The report shall also be made available for public inspections (information regarding the location of archaeological sites shall be withheld). If revisions to this Agreement are needed, the signatories to this Agreement will amend the agreement in accordance with Section V. E. below.



C. The Council and the SHPOs may monitor activities carried out pursuant to this Agreement, and the Council will review such activities if so requested. The Corps shall cooperate with the Council and the SHPOs in carrying out their respective monitoring and review responsibilities.

D. This Agreement will be circulated for public and agency review as part of an Environmental Impact Statement (EIS) being prepared for the project under the National Environmental Policy Act (NEPA) and Section 106 of the NHPA. In consultation with the SHPOs, the Corps shall develop additional means to inform the interested public of the existence of this Agreement, and about how the obligations under the terms of the Agreement are to be met. Copies of this Agreement and relevant documentation prepared under it shall be made available for public inspection (information regarding the locations of archaeological sites shall be withheld). Any comments received from the public under this Agreement shall be taken into account.

E. This agreement may be amended by a consensus of the parties to this Agreement. Any party to this Agreement may request that it be amended, whereupon the parties will consult in accordance with 36 CFR Section 800.14 to consider such amendment. Amendments shall be in writing and signed by all parties to this agreement.

F. Any party to this Agreement may terminate it by providing thirty days notice to the other parties, provided that the parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the event of termination, the Corps will comply with 36 CFR Subpart B, Sections 800.3 through 800.8 with regard to individual undertakings covered by this Agreement.

G. Should any party to this Agreement submit an objection in writing to the Corps regarding any action taken or proposed with respect to implementation of this Agreement, the Corps shall consult with the objecting party and attempt to resolve the objection. If the Corps determines that the objection cannot be resolved, the further comments of the Council shall be requested in accordance with 36 CFR Part 800.7 with reference to the

subject of the dispute. Responsibility to carry out all other actions under this Agreement that are not the subject of the dispute will remain unchanged.

H. Execution and implementation of this Programmatic Agreement evidences that the Corps has satisfied its Section 106 responsibilities for all individual undertakings of the Project, and that the Corps has afforded the Council an opportunity to comment on the undertaking and its effects on historic properties.

U.S. ARMY CORPS OF ENGINEERS, HUNTINGTON DISTRICT

By: Dana R. Hurst

Date: 9 OCT, 08

Dana R. Hurst, Colonel, Corps of Engineers, District Engineer

U.S. ARMY CORPS OF ENGINEERS, LOUISVILLE DISTRICT

By: Keith A. Landry

Date: 26 Apr 2009

Keith A. Landry, Colonel, Corps of Engineers, District Commander

U.S. ARMY CORPS OF ENGINEERS, PITTSBURGH DISTRICT

By: Michael P. Crall

Date: 24 SEPTEMBER 2008

Michael P. Crall, Colonel, Corps of Engineers, District Engineer

ILLINOIS STATE HISTORIC PRESERVATION OFFICER

By: William L. Wheeler

Date: 7-19-05

William L. Wheeler, State Historic Preservation Officer

INDIANA STATE HISTORIC PRESERVATION OFFICER

By: Jon C. Smith

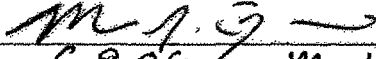
Date: 8/29/05 Jon C. Smith, Deputy SHPO

Kyle J. Huffer, State Historic Preservation Officer

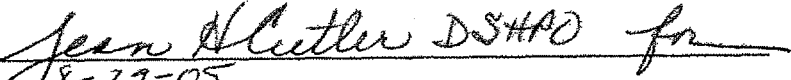
KENTUCKY STATE HISTORIC PRESERVATION OFFICER

By:   
Date: 1-11-06  
David L. Morgan, State Historic Preservation Officer

OHIO STATE HISTORIC PRESERVATION OFFICER

By:   
Date: 6.9.08 Mark J. Epstein  
~~Dr. William K. Laidlaw, Jr., State Historic Preservation~~  
~~Officer~~


PENNSYLVANIA STATE HISTORIC PRESERVATION OFFICER

By:   
Date: 8-27-05  
Barbara Franco, State Historic Preservation Officer

WEST VIRGINIA STATE HISTORIC PRESERVATION OFFICER

By:   
Date: July 18, 2008  
Randall Reid-Smith, State Historic Preservation Officer

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By:   
Date: 6/30/09  
John M. Fowler, Executive Director